Milliman
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October 2018

Amity Fire District/2742
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Amity Fire District/2742

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Amity Fire District -- #2742

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Amity Fire District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Amity Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Amity Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.85%	14.62%	21.85%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(6.30%)	(6.30%)	(6.30%)	(6.30%)	(6.30%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.68%**	**18.45%**	**25.68%**	**12.23%**	**16.86%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.74%**	**18.51%**	**25.74%**	**12.23%**	**16.86%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Amity Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$192,133	$223,504
Allocated pre-SLGRP pooled liability/(surplus)	(14,063)	(15,684)
Transition liability/(surplus)	(52,750)	(55,501)
Allocated pooled OPSRP UAL	15,177	17,848
Side account	0	0
Net unfunded pension actuarial accrued liability	140,497	170,167
Combined valuation payroll	100,716	103,672
Net pension UAL as a percentage of payroll	140%	164%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(6.30%)	(5.95%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,154)	($14)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	76,266	16,977	22.14%	67,204	14,879
Tier 2 Police & Fire	20.05%	17,143	3,437	19.73%	20,422	4,029
Total Police & Fire		**93,409**	**20,414**		**87,626**	**18,908**
Total		**$93,409**	**$20,414**		**$87,626**	**$18,908**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**21.85%**			**21.58%**
Aggregate (Default)			**21.85%**			**21.58%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($55,501)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.43%)
B. Actual employer payroll	46,372
C. Payment to transition liability/(surplus)	(2,518)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.48%)
B. Actual employer payroll	50,472
C. Payment to transition liability/(surplus)	(3,776)
4. Supplemental payment to transition liability	0
5. Interest	(3,543)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($52,750)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(52,750)	(55,501)
2. Combined valuation payroll	100,716	103,672
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(6.30%)**	**(5.95%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	100,716	103,672
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Arch Cape Water-Sanitary District/2631
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Arch Cape Water-Sanitary District/2631

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Arch Cape Water-Sanitary District -- #2631

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Arch Cape Water-Sanitary District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Arch Cape Water-Sanitary District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Arch Cape Water-Sanitary District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.37%)	(6.37%)	(6.37%)	(6.37%)	(6.37%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.08%**	**18.08%**	**26.27%**	**13.84%**	**18.47%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.14%**	**18.14%**	**26.33%**	**13.84%**	**18.47%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Arch Cape Water-Sanitary District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$236,105	$288,199
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(65,580)	(68,042)
Allocated pooled OPSRP UAL	18,650	23,015
Side account	0	0
Net unfunded pension actuarial accrued liability	189,175	243,172
Combined valuation payroll	123,766	133,681
Net pension UAL as a percentage of payroll	153%	182%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.37%)	(5.66%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,418)	($18)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	72,765	9,197	12.54%	70,266	8,811
Total General Service		**72,765**	**9,197**		**70,266**	**8,811**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$72,765**	**$9,197**		**$70,266**	**$8,811**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($68,042)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.34%)
B. Actual employer payroll	58,096
C. Payment to transition liability/(surplus)	(3,102)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.23%)
B. Actual employer payroll	60,424
C. Payment to transition liability/(surplus)	(3,765)
4. Supplemental payment to transition liability	0
5. Interest	(4,405)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($65,580)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(65,580)	(68,042)
2. Combined valuation payroll	123,766	133,681
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(6.37%)**	**(5.66%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	123,766	133,681
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Aumsville Rural Fire Protection District/2602
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Aumsville Rural Fire Protection District/2602

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Aumsville Rural Fire Protection District -- #2602

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Aumsville Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Aumsville Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Aumsville Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.79%)	(9.79%)	(9.79%)	(9.79%)	(9.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.66%**	**14.66%**	**22.85%**	**10.42%**	**15.05%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.72%**	**14.72%**	**22.91%**	**10.42%**	**15.05%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Aumsville Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$287,877	$464,274
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(122,756)	(125,324)
Allocated pooled OPSRP UAL	22,740	37,076
Side account	0	0
Net unfunded pension actuarial accrued liability	187,861	376,026
Combined valuation payroll	150,905	215,353
Net pension UAL as a percentage of payroll	124%	175%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.79%)	(6.47%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,729)	($29)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	50,901	6,434	12.54%	69,271	8,687
Total General Service		**50,901**	**6,434**		**69,271**	**8,687**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$50,901**	**$6,434**		**$69,271**	**$8,687**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($125,324)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.04%)
B. Actual employer payroll	75,397
C. Payment to transition liability/(surplus)	(4,554)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.05%)
B. Actual employer payroll	103,450
C. Payment to transition liability/(surplus)	(6,259)
4. Supplemental payment to transition liability	0
5. Interest	(8,245)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($122,756)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(122,756)	(125,324)
2. Combined valuation payroll	150,905	215,353
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(9.79%)**	**(6.47%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	150,905	215,353
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Aurora Rural Fire Protection District/2804
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Aurora Rural Fire Protection District/2804

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Aurora Rural Fire Protection District/2804

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Aurora Rural Fire Protection District -- #2804

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Aurora Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Aurora Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Aurora Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.05%	14.62%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(17.44%)	(17.44%)	(17.44%)	(17.44%)	(17.44%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.42%**	**8.99%**	**14.42%**	**2.77%**	**7.40%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.48%**	**9.05%**	**14.48%**	**2.77%**	**7.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Aurora Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$378,634	$654,681
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(287,731)	(292,951)
Allocated pooled OPSRP UAL	29,909	52,281
Side account	0	0
Net unfunded pension actuarial accrued liability	120,812	414,011
Combined valuation payroll	198,479	303,673
Net pension UAL as a percentage of payroll	61%	136%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(17.44%)	(10.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,274)	($41)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	72,260	14,488	19.73%	77,095	15,211
Total Police & Fire		**72,260**	**14,488**		**77,095**	**15,211**
Total		**$72,260**	**$14,488**		**$77,095**	**$15,211**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**20.05%**			**19.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($292,951)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	148,919
C. Payment to transition liability/(surplus)	(14,624)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.41%)
B. Actual employer payroll	95,312
C. Payment to transition liability/(surplus)	(9,921)
4. Supplemental payment to transition liability	0
5. Interest	(19,325)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($287,731)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(287,731)	(292,951)
2. Combined valuation payroll	198,479	303,673
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(17.44%)**	**(10.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	198,479	303,673
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Baker County Library District/2728
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Baker County Library District/2728

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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October 2018
Baker County Library District/2728

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker County Library District -- #2728

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Baker County Library District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker County Library District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Baker County Library District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.06%	16.06%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.93%)	(1.93%)	(1.93%)	(1.93%)	(1.93%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.94%**	**25.94%**	**30.71%**	**18.28%**	**22.91%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.00%**	**26.00%**	**30.77%**	**18.28%**	**22.91%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker County Library District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,018,682	$1,061,746
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(85,668)	(90,095)
Allocated pooled OPSRP UAL	80,468	84,788
Side account	0	0
Net unfunded pension actuarial accrued liability	1,013,482	1,056,439
Combined valuation payroll	533,992	492,490
Net pension UAL as a percentage of payroll	190%	215%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.93%)	(2.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,119)	($67)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$142,960	$24,546	17.48%	$137,366	$24,012
Tier 2 General Service	12.64%	46,405	5,866	12.54%	73,022	9,157
Total General Service		**189,365**	**30,412**		**210,388**	**33,169**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$189,365**	**$30,412**		**$210,388**	**$33,169**
Employer normal cost rate						
General Service			**16.06%**			**15.77%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**16.06%**			**15.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($90,095)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.20%)
B. Actual employer payroll	252,220
C. Payment to transition liability/(surplus)	(5,549)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.79%)
B. Actual employer payroll	258,789
C. Payment to transition liability/(surplus)	(4,632)
4. Supplemental payment to transition liability	0
5. Interest	(5,754)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($85,668)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(85,668)	(90,095)
2. Combined valuation payroll	533,992	492,490
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.93%)**	**(2.03%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	533,992	492,490
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Baker County/2021
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Baker County/2021

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Baker County/2021

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker County -- #2021

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Baker County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Baker County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.08%	13.84%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.72%)	(4.72%)	(4.72%)	(4.72%)	(4.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.17%**	**20.93%**	**27.14%**	**15.49%**	**20.12%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.23%**	**20.99%**	**27.20%**	**15.49%**	**20.12%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$10,108,989	$11,032,754
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,078,188)	(2,173,318)
Allocated pooled OPSRP UAL	798,531	881,046
Side account	0	0
Net unfunded pension actuarial accrued liability	8,829,332	9,740,482
Combined valuation payroll	5,299,125	5,117,533
Net pension UAL as a percentage of payroll	167%	190%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.72%)	(4.72%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($60,718)	($697)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$350,081	$60,109	17.48%	$339,148	$59,283
Tier 2 General Service	12.64%	975,880	123,351	12.54%	1,001,065	125,534
Total General Service		**1,325,961**	**183,460**		**1,340,213**	**184,817**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	750,136	150,402	19.73%	744,227	146,836
Total Police & Fire		**750,136**	**150,402**		**744,227**	**146,836**
Total		**$2,076,097**	**$333,862**		**$2,084,440**	**$331,653**
Employer normal cost rate						
General Service			**13.84%**			**13.79%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**16.08%**			**15.91%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,173,318)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.30%)
B. Actual employer payroll	2,576,063
C. Payment to transition liability/(surplus)	(110,771)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.51%)
B. Actual employer payroll	2,748,100
C. Payment to transition liability/(surplus)	(123,939)
4. Supplemental payment to transition liability	0
5. Interest	(139,580)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,078,188)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,078,188)	(2,173,318)
2. Combined valuation payroll	5,299,125	5,117,533
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.72%)**	**(4.72%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	5,299,125	5,117,533
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Baker Valley Irrigation District/2601
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Baker Valley Irrigation District/2601

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Baker Valley Irrigation District -- #2601

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Baker Valley Irrigation District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Baker Valley Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Baker Valley Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(35.49%)	(35.49%)	(35.49%)	(35.49%)	(35.49%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Baker Valley Irrigation District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$136,275	$149,756
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(210,713)	(211,889)
Allocated pooled OPSRP UAL	10,765	11,959
Side account	0	0
Net unfunded pension actuarial accrued liability	(63,673)	(50,174)
Combined valuation payroll	71,435	69,464
Net pension UAL as a percentage of payroll	(89%)	(72%)
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(35.49%)	(33.92%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($819)	($9)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$71,435	$12,265	17.48%	$69,464	$12,142
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**71,435**	**12,265**		**69,464**	**12,142**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$71,435**	**$12,265**		**$69,464**	**$12,142**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($211,889)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(19.29%)
B. Actual employer payroll	32,560
C. Payment to transition liability/(surplus)	(6,281)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(24.85%)
B. Actual employer payroll	36,406
C. Payment to transition liability/(surplus)	(9,047)
4. Supplemental payment to transition liability	0
5. Interest	(14,152)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($210,713)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(210,713)	(211,889)
2. Combined valuation payroll	71,435	69,464
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(35.49%)**	**(33.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	71,435	69,464
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Benton County/2040
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Benton County/2040

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Benton County/2040

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Benton County -- #2040

October 2018

Secondary Employers

2639 North Albany Service District

CONTENTS

Executive Summary

Milliman has prepared this report for Benton County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Benton County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Benton County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.70%	14.04%	20.74%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.94%)	(3.94%)	(3.94%)	(3.94%)	(3.94%)
Side account rate relief [2]	(2.71%)	(2.71%)	(2.71%)	(2.71%)	(2.71%)
Net pension contribution rate	**20.86%**	**19.20%**	**25.90%**	**13.56%**	**18.19%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.92%**	**19.26%**	**25.96%**	**13.56%**	**18.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Benton County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$52,523,116	$60,913,267
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(9,021,720)	(9,643,091)
Allocated pooled OPSRP UAL	4,148,915	4,864,368
Side account	6,202,171	6,018,038
Net unfunded pension actuarial accrued liability	41,448,140	50,116,506
Combined valuation payroll	27,532,580	28,254,565
Net pension UAL as a percentage of payroll	151%	177%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.94%)	(3.79%)
Side account rate relief	(2.71%)	(2.37%)
Allocated pooled RHIA UAL	($315,474)	($3,847)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$2,261,672	$388,329	17.48%	$3,169,754	$554,073
Tier 2 General Service	12.64%	5,035,924	636,541	12.54%	5,245,751	657,817
Total General Service		**7,297,596**	**1,024,870**		**8,415,505**	**1,211,890**
Tier 1 Police & Fire	22.26%	753,698	167,773	22.14%	694,501	153,763
Tier 2 Police & Fire	20.05%	1,649,844	330,794	19.73%	1,675,487	330,574
Total Police & Fire		**2,403,542**	**498,567**		**2,369,988**	**484,337**
Total		**$9,701,138**	**$1,523,437**		**$10,785,493**	**$1,696,227**
Employer normal cost rate						
General Service			**14.04%**			**14.40%**
Police & Fire			**20.74%**			**20.44%**
Aggregate (Default)			**15.70%**			**15.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($9,643,091)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.51%)
B. Actual employer payroll	14,055,678
C. Payment to transition liability/(surplus)	(633,911)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.16%)
B. Actual employer payroll	14,264,321
C. Payment to transition liability/(surplus)	(593,396)
4. Supplemental payment to transition liability	0
5. Interest	(605,936)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($9,021,720)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(9,021,720)	(9,643,091)
2. Combined valuation payroll	27,532,580	28,254,565
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.94%)**	**(3.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$6,018,038**	**$6,018,038**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(698,167)	(698,167)
5. Side account earnings during 2017		882,800	882,800
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$6,202,171**	**$6,202,171**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$6,202,171	$6,018,038
Side Account 2	0	0
Side Account 3	0	0
Total	**$6,202,171**	**$6,018,038**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$6,202,171	$6,018,038
2. Combined valuation payroll	27,532,580	28,254,565
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(2.71%)	(2.37%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Black Butte Ranch Police/2749
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Black Butte Ranch Police/2749

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Black Butte Ranch Police -- #2749

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Black Butte Ranch Police to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Black Butte Ranch Police.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Black Butte Ranch Police

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.05%	14.62%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.57%)	(7.57%)	(7.57%)	(7.57%)	(7.57%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.61%**	**17.18%**	**22.61%**	**10.96%**	**15.59%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.67%**	**17.24%**	**22.67%**	**10.96%**	**15.59%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Black Butte Ranch Police

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$822,718	$883,718
Allocated pre-SLGRP pooled liability/(surplus)	(60,216)	(62,015)
Transition liability/(surplus)	(271,267)	(280,615)
Allocated pooled OPSRP UAL	64,988	70,571
Side account	0	0
Net unfunded pension actuarial accrued liability	556,223	611,659
Combined valuation payroll	431,268	409,912
Net pension UAL as a percentage of payroll	129%	149%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(7.57%)	(7.61%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,942)	($56)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	277,277	55,594	19.73%	265,255	52,335
Total Police & Fire		**277,277**	**55,594**		**265,255**	**52,335**
Total		**$277,277**	**$55,594**		**$265,255**	**$52,335**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**20.05%**			**19.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($280,615)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.93%)
B. Actual employer payroll	203,082
C. Payment to transition liability/(surplus)	(12,043)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.41%)
B. Actual employer payroll	209,501
C. Payment to transition liability/(surplus)	(15,524)
4. Supplemental payment to transition liability	0
5. Interest	(18,219)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($271,267)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(271,267)	(280,615)
2. Combined valuation payroll	431,268	409,912
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.57%)**	**(7.61%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	431,268	409,912
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Blue Mountain Community College/2901
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Blue Mountain Community College/2901

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Blue Mountain Community College -- #2901

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Blue Mountain Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Blue Mountain Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Blue Mountain Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(9.85%)	(9.85%)	(9.85%)	(9.85%)	(9.85%)
Net pension contribution rate	**18.10%**	**18.10%**	**24.50%**	**12.07%**	**16.70%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.16%**	**18.16%**	**24.56%**	**12.07%**	**16.70%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Blue Mountain Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$20,784,135	$22,540,476
Allocated pre-SLGRP pooled liability/(surplus)	1,551,065	1,637,139
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,641,784	1,800,021
Side account	8,921,842	8,663,857
Net unfunded pension actuarial accrued liability	15,055,142	17,313,779
Combined valuation payroll	10,895,029	10,455,380
Net pension UAL as a percentage of payroll	138%	166%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(9.85%)	(9.21%)
Allocated pooled RHIA UAL	($124,837)	($1,424)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	10,895,029	10,455,380
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$8,663,857**	**$8,663,857**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(1,014,753)	(1,014,753)
5. Side account earnings during 2017		1,273,237	1,273,237
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$8,921,842**	**$8,921,842**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$8,921,842	$8,663,857
Side Account 2	0	0
Side Account 3	0	0
Total	**$8,921,842**	**$8,663,857**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$8,921,842	$8,663,857
2. Combined valuation payroll	10,895,029	10,455,380
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(9.85%)	(9.21%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Canby Fire District/2595
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Canby Fire District/2595

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Canby Fire District -- #2595

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Canby Fire District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Canby Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Canby Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.12%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.45%)	(2.45%)	(2.45%)	(2.45%)	(2.45%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.48%**	**22.00%**	**30.19%**	**17.76%**	**22.39%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.54%**	**22.06%**	**30.25%**	**17.76%**	**22.39%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Canby Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,138,664	$3,832,466
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(442,185)	(468,860)
Allocated pooled OPSRP UAL	326,922	306,050
Side account	0	0
Net unfunded pension actuarial accrued liability	4,023,401	3,669,656
Combined valuation payroll	2,169,485	1,777,686
Net pension UAL as a percentage of payroll	185%	206%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.45%)	(2.93%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($24,858)	($242)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	84,235	10,647	12.54%	82,347	10,326
Total General Service		**84,235**	**10,647**		**82,347**	**10,326**
Tier 1 Police & Fire	22.26%	314,840	70,083	22.14%	242,152	53,612
Tier 2 Police & Fire	20.05%	581,003	116,491	19.73%	638,028	125,883
Total Police & Fire		**895,843**	**186,574**		**880,180**	**179,495**
Total		**$980,078**	**$197,221**		**$962,527**	**$189,821**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.39%**
Aggregate (Default)			**20.12%**			**19.72%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($468,860)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	902,010
C. Payment to transition liability/(surplus)	(22,370)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.85%)
B. Actual employer payroll	1,193,144
C. Payment to transition liability/(surplus)	(34,004)
4. Supplemental payment to transition liability	0
5. Interest	(29,699)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($442,185)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(442,185)	(468,860)
2. Combined valuation payroll	2,169,485	1,777,686
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.45%)**	**(2.93%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,169,485	1,777,686
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Canby Utility Board/2731
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Canby Utility Board/2731

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Canby Utility Board -- #2731

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Canby Utility Board to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Canby Utility Board.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Canby Utility Board

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.24%	15.24%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.17%	0.17%	0.17%	0.17%	0.17%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.54%**	**25.54%**	**31.13%**	**18.70%**	**23.33%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.60%**	**25.60%**	**31.19%**	**18.70%**	**23.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Canby Utility Board

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,277,659	$3,649,805
Allocated pre-SLGRP pooled liability/(surplus)	(239,897)	(256,124)
Transition liability/(surplus)	24,236	25,438
Allocated pooled OPSRP UAL	258,909	291,464
Side account	0	0
Net unfunded pension actuarial accrued liability	3,320,907	3,710,583
Combined valuation payroll	1,718,146	1,692,959
Net pension UAL as a percentage of payroll	193%	219%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.17%	0.17%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($19,687)	($231)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$357,272	$61,344	17.48%	$361,416	$63,176
Tier 2 General Service	12.64%	265,995	33,622	12.54%	202,612	25,408
Total General Service		**623,267**	**94,966**		**564,028**	**88,584**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$623,267**	**$94,966**		**$564,028**	**$88,584**
Employer normal cost rate						
General Service			**15.24%**			**15.71%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.24%**			**15.71%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$25,438
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.15%
B. Actual employer payroll	876,732
C. Payment to transition liability/(surplus)	1,315
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.16%
B. Actual employer payroll	946,731
C. Payment to transition liability/(surplus)	1,515
4. Supplemental payment to transition liability	0
5. Interest	1,628
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$24,236**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	24,236	25,438
2. Combined valuation payroll	1,718,146	1,692,959
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.17%**	**0.17%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,718,146	1,692,959
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Cannon Beach Rural Fire Protection District/2840
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Cannon Beach Rural Fire Protection District/2840

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Cannon Beach Rural Fire Protection District -- #2840

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Cannon Beach Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Cannon Beach Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Cannon Beach Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.72%	14.62%	21.72%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.05%)	(0.05%)	(0.05%)	(0.05%)	(0.05%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**31.80%**	**24.70%**	**31.80%**	**18.48%**	**23.11%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.86%**	**24.76%**	**31.86%**	**18.48%**	**23.11%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Cannon Beach Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$246,092	$218,131
Allocated pre-SLGRP pooled liability/(surplus)	(18,012)	(15,307)
Transition liability/(surplus)	(538)	(564)
Allocated pooled OPSRP UAL	19,439	17,419
Side account	0	0
Net unfunded pension actuarial accrued liability	246,981	219,679
Combined valuation payroll	129,001	101,180
Net pension UAL as a percentage of payroll	191%	217%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.05%)	(0.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,478)	($14)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	97,759	21,761	22.14%	101,180	22,401
Tier 2 Police & Fire	20.05%	31,242	6,264	19.73%	0	0
Total Police & Fire		**129,001**	**28,025**		**101,180**	**22,401**
Total		**$129,001**	**$28,025**		**$101,180**	**$22,401**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**21.72%**			**22.14%**
Aggregate (Default)			**21.72%**			**22.14%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($564)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.05%)
B. Actual employer payroll	60,500
C. Payment to transition liability/(surplus)	(30)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.05%)
B. Actual employer payroll	63,508
C. Payment to transition liability/(surplus)	(32)
4. Supplemental payment to transition liability	0
5. Interest	(36)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($538)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(538)	(564)
2. Combined valuation payroll	129,001	101,180
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.05%)**	**(0.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	129,001	101,180
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Central Oregon Coast Fire & Rescue District/2820
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Central Oregon Coast Fire & Rescue District/2820

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Coast Fire & Rescue District -- #2820

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Coast Fire & Rescue District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Coast Fire & Rescue District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Central Oregon Coast Fire & Rescue District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(32.44%)	(32.44%)	(32.44%)	(32.44%)	(32.44%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.20%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.26%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Coast Fire & Rescue District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$217,708	$201,656
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(307,744)	(294,143)
Allocated pooled OPSRP UAL	17,197	16,104
Side account	0	0
Net unfunded pension actuarial accrued liability	(72,839)	(76,383)
Combined valuation payroll	114,122	93,538
Net pension UAL as a percentage of payroll	(64%)	(82%)
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(32.44%)	(34.96%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,308)	($13)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($294,143)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(8.25%)
B. Actual employer payroll	34,542
C. Payment to transition liability/(surplus)	(2,850)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.16%)
B. Actual employer payroll	58,909
C. Payment to transition liability/(surplus)	(4,218)
4. Supplemental payment to transition liability	0
5. Interest	(20,669)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($307,744)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(307,744)	(294,143)
2. Combined valuation payroll	114,122	93,538
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(32.44%)**	**(34.96%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	114,122	93,538
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Central Oregon Community College/2999
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Central Oregon Community College/2999

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Community College -- #2999

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Central Oregon Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(5.47%)	(5.47%)	(5.47%)	(5.47%)	(5.47%)
Net pension contribution rate	**22.48%**	**22.48%**	**28.88%**	**16.45%**	**21.08%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.54%**	**22.54%**	**28.94%**	**16.45%**	**21.08%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$45,248,192	$51,343,690
Allocated pre-SLGRP pooled liability/(surplus)	3,376,752	3,729,148
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	3,574,253	4,100,167
Side account	10,776,026	10,446,286
Net unfunded pension actuarial accrued liability	41,423,171	48,726,719
Combined valuation payroll	23,719,070	23,815,725
Net pension UAL as a percentage of payroll	175%	205%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(5.47%)	(4.88%)
Allocated pooled RHIA UAL	($271,778)	($3,243)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	23,719,070	23,815,725
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$10,446,286**	**$10,446,286**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(1,212,750)	(1,212,750)
5. Side account earnings during 2017		1,542,990	1,542,990
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$10,776,026**	**$10,776,026**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$10,776,026	$10,446,286
Side Account 2	0	0
Side Account 3	0	0
Total	**$10,776,026**	**$10,446,286**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$10,776,026	$10,446,286
2. Combined valuation payroll	23,719,070	23,815,725
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(5.47%)	(4.88%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Central Oregon Intergovernmental Council/2569
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Central Oregon Intergovernmental Council/2569

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Intergovernmental Council -- #2569

October 2018

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Executive Summary

Milliman has prepared this report for Central Oregon Intergovernmental Council to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Intergovernmental Council.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Central Oregon Intergovernmental Council

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.88%	13.88%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(13.83%)	(13.83%)	(13.83%)	(13.83%)	(13.83%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**11.86%**	**11.86%**	**18.81%**	**6.38%**	**11.01%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**11.92%**	**11.92%**	**18.87%**	**6.38%**	**11.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Intergovernmental Council

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,178,520	$9,464,767
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(7,155,842)	(7,183,364)
Allocated pooled OPSRP UAL	646,039	755,831
Side account	0	0
Net unfunded pension actuarial accrued liability	1,668,717	3,037,234
Combined valuation payroll	4,287,175	4,390,224
Net pension UAL as a percentage of payroll	39%	69%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(13.83%)	(12.97%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($49,123)	($598)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$438,907	$75,360	17.48%	$452,475	$79,093
Tier 2 General Service	12.64%	1,162,074	146,886	12.54%	1,208,782	151,581
Total General Service		**1,600,981**	**222,246**		**1,661,257**	**230,674**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,600,981**	**$222,246**		**$1,661,257**	**$230,674**
Employer normal cost rate						
General Service			**13.88%**			**13.89%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.88%**			**13.89%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($7,183,364)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(10.78%)
B. Actual employer payroll	2,401,262
C. Payment to transition liability/(surplus)	(258,856)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.78%)
B. Actual employer payroll	2,312,451
C. Payment to transition liability/(surplus)	(249,282)
4. Supplemental payment to transition liability	0
5. Interest	(480,616)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,155,842)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(7,155,842)	(7,183,364)
2. Combined valuation payroll	4,287,175	4,390,224
3. Regular amortization factor	12.066	12.618
4. **Total transition liability/(surplus) rate**	**(13.83%)**	**(12.97%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,287,175	4,390,224
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Central Oregon Irrigation District/2563
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Central Oregon Irrigation District/2563

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Central Oregon Irrigation District -- #2563

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Central Oregon Irrigation District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Central Oregon Irrigation District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Central Oregon Irrigation District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.41%	14.41%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.61%	2.61%	2.61%	2.61%	2.61%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.15%**	**27.15%**	**33.57%**	**21.14%**	**25.77%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.21%**	**27.21%**	**33.63%**	**21.14%**	**25.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Central Oregon Irrigation District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,447,042	$3,970,226
Allocated pre-SLGRP pooled liability/(surplus)	(252,294)	(278,610)
Transition liability/(surplus)	392,426	416,666
Allocated pooled OPSRP UAL	272,289	317,051
Side account	0	0
Net unfunded pension actuarial accrued liability	3,859,463	4,425,333
Combined valuation payroll	1,806,937	1,841,586
Net pension UAL as a percentage of payroll	214%	240%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	2.61%	2.52%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($20,704)	($251)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$240,609	$41,313	17.48%	$347,036	$60,662
Tier 2 General Service	12.64%	376,694	47,614	12.54%	370,290	46,434
Total General Service		**617,303**	**88,927**		**717,326**	**107,096**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$617,303**	**$88,927**		**$717,326**	**$107,096**
Employer normal cost rate						
General Service			**14.41%**			**14.93%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.41%**			**14.93%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$416,666
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	2.95%
B. Actual employer payroll	875,947
C. Payment to transition liability/(surplus)	25,840
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	2.73%
B. Actual employer payroll	906,832
C. Payment to transition liability/(surplus)	24,757
4. Supplemental payment to transition liability	0
5. Interest	26,357
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$392,426**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	392,426	416,666
2. Combined valuation payroll	1,806,937	1,841,586
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**2.61%**	**2.52%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,806,937	1,841,586
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Charleston Rural Fire Protection District/2567
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Charleston Rural Fire Protection District/2567

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Charleston Rural Fire Protection District -- #2567

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Charleston Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Charleston Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Charleston Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.26%	14.62%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(20.92%)	(20.92%)	(20.92%)	(20.92%)	(20.92%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**13.15%**	**5.51%**	**13.15%**	**0.00%**	**3.92%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**13.21%**	**5.57%**	**13.21%**	**0.00%**	**3.92%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Charleston Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$108,354	$276,359
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(98,782)	(99,432)
Allocated pooled OPSRP UAL	8,559	22,069
Side account	0	0
Net unfunded pension actuarial accrued liability	18,131	198,996
Combined valuation payroll	56,799	128,189
Net pension UAL as a percentage of payroll	32%	155%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(20.92%)	(8.62%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($651)	($17)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	56,799	12,643	22.14%	76,058	16,839
Tier 2 Police & Fire	20.05%	0	0	19.73%	52,131	10,285
Total Police & Fire		**56,799**	**12,643**		**128,189**	**27,124**
Total		**$56,799**	**$12,643**		**$128,189**	**$27,124**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**22.26%**			**21.16%**
Aggregate (Default)			**22.26%**			**21.16%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($99,432)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.66%)
B. Actual employer payroll	90,678
C. Payment to transition liability/(surplus)	(5,132)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.76%)
B. Actual employer payroll	37,375
C. Payment to transition liability/(surplus)	(2,153)
4. Supplemental payment to transition liability	0
5. Interest	(6,635)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($98,782)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(98,782)	(99,432)
2. Combined valuation payroll	56,799	128,189
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(20.92%)**	**(8.62%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	56,799	128,189
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Chemeketa Community College/2919
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Chemeketa Community College/2919

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Chemeketa Community College -- #2919

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Chemeketa Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Chemeketa Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Chemeketa Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(12.26%)	(12.26%)	(12.26%)	(12.26%)	(12.26%)
Net pension contribution rate	**15.69%**	**15.69%**	**22.09%**	**9.66%**	**14.29%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.75%**	**15.75%**	**22.15%**	**9.66%**	**14.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Chemeketa Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$90,356,247	$102,475,888
Allocated pre-SLGRP pooled liability/(surplus)	6,743,046	7,442,935
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	7,137,437	8,183,446
Side account	48,276,262	47,213,823
Net unfunded pension actuarial accrued liability	55,960,468	70,888,446
Combined valuation payroll	47,364,680	47,533,350
Net pension UAL as a percentage of payroll	118%	149%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(12.26%)	(11.05%)
Allocated pooled RHIA UAL	($542,714)	($6,472)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	47,364,680	47,533,350
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$47,213,823**	**$47,213,823**
2. Deposits during 2017			
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2017		(5,877,129)	(5,877,129)
5. Side account earnings during 2017		6,940,568	6,940,568
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$48,276,262**	**$48,276,262**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$26,304,667	$25,727,779
Side Account 2	21,971,595	21,486,044
Side Account 3	0	0
Total	**$48,276,262**	**$47,213,823**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$48,276,262	$47,213,823
2. Combined valuation payroll	47,364,680	47,533,350
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(12.26%)	(11.05%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Chetco Library Board/2699
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Chetco Library Board/2699

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Chetco Library Board -- #2699

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Chetco Library Board to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Chetco Library Board.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Chetco Library Board

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.48%)	(0.48%)	(0.48%)	(0.48%)	(0.48%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.82%**	**26.82%**	**30.48%**	**18.05%**	**22.68%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.88%**	**26.88%**	**30.54%**	**18.05%**	**22.68%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Chetco Library Board

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$426,588	$491,675
Allocated pre-SLGRP pooled liability/(surplus)	(31,223)	(34,503)
Transition liability/(surplus)	(8,908)	(9,342)
Allocated pooled OPSRP UAL	33,697	39,264
Side account	0	0
Net unfunded pension actuarial accrued liability	420,154	487,094
Combined valuation payroll	223,617	228,063
Net pension UAL as a percentage of payroll	188%	214%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.48%)	(0.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,562)	($31)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$138,278	$23,742	17.48%	$131,465	$22,980
Tier 2 General Service	12.64%	0	0	12.54%	16,737	2,099
Total General Service		**138,278**	**23,742**		**148,202**	**25,079**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$138,278**	**$23,742**		**$148,202**	**$25,079**
Employer normal cost rate						
General Service			**17.17%**			**16.92%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**16.92%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($9,342)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.44%)
B. Actual employer payroll	113,211
C. Payment to transition liability/(surplus)	(498)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.45%)
B. Actual employer payroll	118,784
C. Payment to transition liability/(surplus)	(534)
4. Supplemental payment to transition liability	0
5. Interest	(598)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($8,908)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(8,908)	(9,342)
2. Combined valuation payroll	223,617	228,063
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.48%)**	**(0.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	223,617	228,063
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Adair Village/2258
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Adair Village/2258

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Adair Village -- #2258

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Adair Village to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Adair Village.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Adair Village

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.55%	0.55%	0.55%	0.55%	0.55%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.51%**	**25.30%**	**31.51%**	**19.08%**	**23.71%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.57%**	**25.36%**	**31.57%**	**19.08%**	**23.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Adair Village

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$411,410	$444,651
Allocated pre-SLGRP pooled liability/(surplus)	(30,112)	(31,203)
Transition liability/(surplus)	9,780	10,380
Allocated pooled OPSRP UAL	32,498	35,509
Side account	0	0
Net unfunded pension actuarial accrued liability	423,576	459,337
Combined valuation payroll	215,661	206,251
Net pension UAL as a percentage of payroll	196%	223%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.55%	0.56%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,471)	($28)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$10,380
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.56%
B. Actual employer payroll	100,490
C. Payment to transition liability/(surplus)	563
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.67%
B. Actual employer payroll	103,682
C. Payment to transition liability/(surplus)	694
4. Supplemental payment to transition liability	0
5. Interest	657
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$9,780**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	9,780	10,380
2. Combined valuation payroll	215,661	206,251
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.55%**	**0.56%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	215,661	206,251
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Albany/2103
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Albany/2103

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Albany -- #2103

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Albany to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Albany.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Albany

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.58%	13.88%	21.00%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.94%)	(2.94%)	(2.94%)	(2.94%)	(2.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.45%**	**22.75%**	**29.87%**	**17.27%**	**21.90%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.51%**	**22.81%**	**29.93%**	**17.27%**	**21.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Albany

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$56,082,809	$60,942,315
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(7,187,063)	(7,562,464)
Allocated pooled OPSRP UAL	4,430,103	4,866,687
Side account	0	0
Net unfunded pension actuarial accrued liability	53,325,849	58,246,538
Combined valuation payroll	29,398,569	28,268,039
Net pension UAL as a percentage of payroll	181%	206%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.94%)	(2.97%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($336,854)	($3,849)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,856,970	$318,842	17.48%	$2,525,284	$441,420
Tier 2 General Service	12.64%	4,943,084	624,806	12.54%	5,129,893	643,289
Total General Service		**6,800,054**	**943,648**		**7,655,177**	**1,084,709**
Tier 1 Police & Fire	22.26%	3,165,499	704,640	22.14%	3,229,613	715,036
Tier 2 Police & Fire	20.05%	4,224,472	847,007	19.73%	3,840,881	757,806
Total Police & Fire		**7,389,971**	**1,551,647**		**7,070,494**	**1,472,842**
Total		**$14,190,025**	**$2,495,295**		**$14,725,671**	**$2,557,551**
Employer normal cost rate						
General Service			**13.88%**			**14.17%**
Police & Fire			**21.00%**			**20.83%**
Aggregate (Default)			**17.58%**			**17.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($7,562,464)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.96%)
B. Actual employer payroll	13,846,065
C. Payment to transition liability/(surplus)	(409,844)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.96%)
B. Actual employer payroll	15,144,242
C. Payment to transition liability/(surplus)	(448,270)
4. Supplemental payment to transition liability	0
5. Interest	(482,713)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,187,063)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(7,187,063)	(7,562,464)
2. Combined valuation payroll	29,398,569	28,268,039
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.94%)**	**(2.97%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	29,398,569	28,268,039
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Amity/2235
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Amity/2235

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Amity -- #2235

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Amity to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Amity.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Amity

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.73%)	(12.73%)	(12.73%)	(12.73%)	(12.73%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.91%**	**13.70%**	**19.91%**	**7.48%**	**12.11%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.97%**	**13.76%**	**19.97%**	**7.48%**	**12.11%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Amity

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$483,775	$623,580
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(268,429)	(277,431)
Allocated pooled OPSRP UAL	38,214	49,797
Side account	0	0
Net unfunded pension actuarial accrued liability	253,560	395,946
Combined valuation payroll	253,594	289,247
Net pension UAL as a percentage of payroll	100%	137%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.73%)	(10.66%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,906)	($39)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	66,835	8,381
Total General Service		**0**	**0**		**66,835**	**8,381**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$66,835**	**$8,381**
Employer normal cost rate						
General Service			**14.62%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($277,431)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.22%)
B. Actual employer payroll	160,760
C. Payment to transition liability/(surplus)	(9,999)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(11.73%)
B. Actual employer payroll	145,194
C. Payment to transition liability/(surplus)	(17,032)
4. Supplemental payment to transition liability	0
5. Interest	(18,029)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($268,429)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(268,429)	(277,431)
2. Combined valuation payroll	253,594	289,247
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(12.73%)**	**(10.66%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	253,594	289,247
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Ashland/2104
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Ashland/2104

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Ashland/2104

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Ashland -- #2104

October 2018

Secondary Employers

2169	Ashland Community Hospital
2744	Ashland Parks Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Ashland to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Ashland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Ashland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.83%	14.37%	20.62%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.49%	0.49%	0.49%	0.49%	0.49%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.45%**	**24.99%**	**31.24%**	**19.02%**	**23.65%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.51%**	**25.05%**	**31.30%**	**19.02%**	**23.65%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Ashland

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$33,486,481	$38,094,237
Allocated pre-SLGRP pooled liability/(surplus)	(2,450,926)	(2,673,253)
Transition liability/(surplus)	717,772	754,029
Allocated pooled OPSRP UAL	2,645,170	3,042,102
Side account	0	0
Net unfunded pension actuarial accrued liability	34,398,497	39,217,115
Combined valuation payroll	17,553,590	17,669,978
Net pension UAL as a percentage of payroll	196%	222%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.49%	0.47%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($201,132)	($2,406)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$1,631,643	$280,153	17.48%	$2,229,335	$389,688
Tier 2 General Service	12.64%	2,642,195	333,973	12.54%	2,646,510	331,872
Total General Service		**4,273,838**	**614,126**		**4,875,845**	**721,560**
Tier 1 Police & Fire	22.26%	722,183	160,758	22.14%	1,064,272	235,630
Tier 2 Police & Fire	20.05%	2,056,333	412,295	19.73%	2,008,230	396,224
Total Police & Fire		**2,778,516**	**573,053**		**3,072,502**	**631,854**
Total		**$7,052,354**	**$1,187,179**		**$7,948,347**	**$1,353,414**
Employer normal cost rate						
General Service			**14.37%**			**14.80%**
Police & Fire			**20.62%**			**20.56%**
Aggregate (Default)			**16.83%**			**17.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$754,029
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.47%
B. Actual employer payroll	8,689,600
C. Payment to transition liability/(surplus)	40,841
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.47%
B. Actual employer payroll	9,281,889
C. Payment to transition liability/(surplus)	43,625
4. Supplemental payment to transition liability	0
5. Interest	48,209
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$717,772**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	717,772	754,029
2. Combined valuation payroll	17,553,590	17,669,978
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.49%**	**0.47%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	17,553,590	17,669,978
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Astoria/2105
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Astoria/2105

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Astoria -- #2105

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Astoria to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Astoria.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Astoria

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.70%	13.77%	20.61%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.02%	2.02%	2.02%	2.02%	2.02%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.85%**	**25.92%**	**32.76%**	**20.55%**	**25.18%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.91%**	**25.98%**	**32.82%**	**20.55%**	**25.18%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Astoria

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$11,750,461	$13,623,941
Allocated pre-SLGRP pooled liability/(surplus)	(860,034)	(956,056)
Transition liability/(surplus)	1,035,795	1,090,327
Allocated pooled OPSRP UAL	928,194	1,087,971
Side account	0	0
Net unfunded pension actuarial accrued liability	12,854,416	14,846,183
Combined valuation payroll	6,159,583	6,319,453
Net pension UAL as a percentage of payroll	209%	235%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	2.02%	1.92%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($70,578)	($860)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$314,936	$54,075	17.48%	$453,531	$79,277
Tier 2 General Service	12.64%	945,609	119,525	12.54%	902,488	113,172
Total General Service		**1,260,545**	**173,600**		**1,356,019**	**192,449**
Tier 1 Police & Fire	22.26%	239,858	53,392	22.14%	502,910	111,344
Tier 2 Police & Fire	20.05%	704,576	141,267	19.73%	731,108	144,248
Total Police & Fire		**944,434**	**194,659**		**1,234,018**	**255,592**
Total		**$2,204,979**	**$368,259**		**$2,590,037**	**$448,041**
Employer normal cost rate						
General Service			**13.77%**			**14.19%**
Police & Fire			**20.61%**			**20.71%**
Aggregate (Default)			**16.70%**			**17.30%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$1,090,327
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.99%
B. Actual employer payroll	3,367,514
C. Payment to transition liability/(surplus)	67,014
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	1.77%
B. Actual employer payroll	3,225,236
C. Payment to transition liability/(surplus)	57,086
4. Supplemental payment to transition liability	0
5. Interest	69,568
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,035,795**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	1,035,795	1,090,327
2. Combined valuation payroll	6,159,583	6,319,453
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**2.02%**	**1.92%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	6,159,583	6,319,453
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Aumsville/2234
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Aumsville/2234

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aumsville -- #2234

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aumsville to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aumsville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Aumsville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.73%	14.67%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.15%)	(4.15%)	(4.15%)	(4.15%)	(4.15%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.71%**	**20.65%**	**26.03%**	**14.38%**	**19.01%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.77%**	**20.71%**	**26.09%**	**14.38%**	**19.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aumsville

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,885,615	$2,043,044
Allocated pre-SLGRP pooled liability/(surplus)	(138,011)	(143,370)
Transition liability/(surplus)	(340,834)	(377,802)
Allocated pooled OPSRP UAL	148,949	163,152
Side account	0	0
Net unfunded pension actuarial accrued liability	1,555,719	1,685,024
Combined valuation payroll	988,438	947,664
Net pension UAL as a percentage of payroll	157%	178%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(4.15%)	(4.43%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11,326)	($129)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$139,809	$24,005	17.48%	$133,120	$23,269
Tier 2 General Service	12.64%	171,816	21,718	12.54%	167,512	21,006
Total General Service		**311,625**	**45,723**		**300,632**	**44,275**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	76,165	15,271	19.73%	139,940	27,610
Total Police & Fire		**76,165**	**15,271**		**139,940**	**27,610**
Total		**$387,790**	**$60,994**		**$440,572**	**$71,885**
Employer normal cost rate						
General Service			**14.67%**			**14.73%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**15.73%**			**16.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($377,802)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.78%)
B. Actual employer payroll	452,487
C. Payment to transition liability/(surplus)	(35,203)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.07%)
B. Actual employer payroll	486,320
C. Payment to transition liability/(surplus)	(24,657)
4. Supplemental payment to transition liability	0
5. Interest	(22,892)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($340,834)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(340,834)	(377,802)
2. Combined valuation payroll	988,438	947,664
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.15%)**	**(4.43%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	988,438	947,664
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Aurora/2272
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Aurora/2272

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Aurora -- #2272

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Aurora to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Aurora.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Aurora

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(17.35%)	(17.35%)	(17.35%)	(17.35%)	(17.35%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**10.29%**	**9.08%**	**15.29%**	**2.86%**	**7.49%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**10.35%**	**9.14%**	**15.35%**	**2.86%**	**7.49%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Aurora

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$320,870	$489,827
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(242,514)	(259,377)
Allocated pooled OPSRP UAL	25,346	39,116
Side account	0	0
Net unfunded pension actuarial accrued liability	103,702	269,566
Combined valuation payroll	168,200	227,206
Net pension UAL as a percentage of payroll	62%	119%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(17.35%)	(12.69%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,927)	($31)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$68,838	$12,033
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**68,838**	**12,033**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$68,838**	**$12,033**
Employer normal cost rate						
General Service			**14.62%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($259,377)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(20.49%)
B. Actual employer payroll	103,619
C. Payment to transition liability/(surplus)	(15,607)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(17.21%)
B. Actual employer payroll	110,789
C. Payment to transition liability/(surplus)	(17,544)
4. Supplemental payment to transition liability	0
5. Interest	(16,288)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($242,514)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(242,514)	(259,377)
2. Combined valuation payroll	168,200	227,206
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(17.35%)**	**(12.69%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	168,200	227,206
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Baker City/2159
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Baker City/2159

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Baker City -- #2159

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Baker City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Baker City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Baker City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.44%	13.97%	20.76%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.42%)	(0.42%)	(0.42%)	(0.42%)	(0.42%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.15%**	**23.68%**	**30.47%**	**18.11%**	**22.74%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.21%**	**23.74%**	**30.53%**	**18.11%**	**22.74%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Baker City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$7,023,458	$7,598,611
Allocated pre-SLGRP pooled liability/(surplus)	(514,057)	(533,230)
Transition liability/(surplus)	(128,863)	(134,599)
Allocated pooled OPSRP UAL	554,798	606,804
Side account	0	0
Net unfunded pension actuarial accrued liability	6,935,336	7,537,586
Combined valuation payroll	3,681,692	3,524,609
Net pension UAL as a percentage of payroll	188%	214%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.42%)	(0.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($42,186)	($480)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$263,820	$45,298	17.48%	$299,552	$52,362
Tier 2 General Service	12.64%	634,946	80,257	12.54%	630,390	79,051
Total General Service		**898,766**	**125,555**		**929,942**	**131,413**
Tier 1 Police & Fire	22.26%	301,804	67,182	22.14%	323,169	71,550
Tier 2 Police & Fire	20.05%	638,452	128,010	19.73%	708,253	139,738
Total Police & Fire		**940,256**	**195,192**		**1,031,422**	**211,288**
Total		**$1,839,022**	**$320,747**		**$1,961,364**	**$342,701**
Employer normal cost rate						
General Service			**13.97%**			**14.13%**
Police & Fire			**20.76%**			**20.49%**
Aggregate (Default)			**17.44%**			**17.47%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($134,599)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	1,812,688
C. Payment to transition liability/(surplus)	(7,069)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	1,877,237
C. Payment to transition liability/(surplus)	(7,322)
4. Supplemental payment to transition liability	0
5. Interest	(8,655)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($128,863)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(128,863)	(134,599)
2. Combined valuation payroll	3,681,692	3,524,609
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.42%)**	**(0.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,681,692	3,524,609
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Bandon/2150
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Bandon/2150

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Bandon/2150

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Bandon -- #2150

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Bandon to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Bandon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Bandon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.87%	14.06%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.30%)	(0.30%)	(0.30%)	(0.30%)	(0.30%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.70%**	**23.89%**	**29.88%**	**18.23%**	**22.86%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.76%**	**23.95%**	**29.94%**	**18.23%**	**22.86%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Bandon

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,738,824	$4,579,765
Allocated pre-SLGRP pooled liability/(surplus)	(273,650)	(321,384)
Transition liability/(surplus)	(49,512)	(51,481)
Allocated pooled OPSRP UAL	295,338	365,728
Side account	0	0
Net unfunded pension actuarial accrued liability	3,711,000	4,572,628
Combined valuation payroll	1,959,889	2,124,320
Net pension UAL as a percentage of payroll	189%	215%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.30%)	(0.27%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($22,457)	($289)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$360,964	$61,978	17.48%	$520,623	$91,005
Tier 2 General Service	12.64%	786,936	99,469	12.54%	748,668	93,883
Total General Service		**1,147,900**	**161,447**		**1,269,291**	**184,888**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	178,111	35,711	19.73%	167,253	32,999
Total Police & Fire		**178,111**	**35,711**		**167,253**	**32,999**
Total		**$1,326,011**	**$197,158**		**$1,436,544**	**$217,887**
Employer normal cost rate						
General Service			**14.06%**			**14.57%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**14.87%**			**15.17%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($51,481)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.24%)
B. Actual employer payroll	1,036,593
C. Payment to transition liability/(surplus)	(2,488)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.28%)
B. Actual employer payroll	1,002,077
C. Payment to transition liability/(surplus)	(2,806)
4. Supplemental payment to transition liability	0
5. Interest	(3,325)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($49,512)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(49,512)	(51,481)
2. Combined valuation payroll	1,959,889	2,124,320
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.30%)**	**(0.27%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,959,889	2,124,320
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Banks/2231
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Banks/2231

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Banks -- #2231

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Banks to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Banks.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Banks

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(10.43%)	(10.43%)	(10.43%)	(10.43%)	(10.43%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.02%**	**14.02%**	**22.21%**	**9.78%**	**14.41%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.08%**	**14.08%**	**22.27%**	**9.78%**	**14.41%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Banks

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$612,544	$583,578
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(278,421)	(295,996)
Allocated pooled OPSRP UAL	48,386	46,603
Side account	0	0
Net unfunded pension actuarial accrued liability	382,509	334,185
Combined valuation payroll	321,095	270,692
Net pension UAL as a percentage of payroll	119%	123%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(10.43%)	(12.16%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,679)	($37)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	28,252	3,571	12.54%	27,383	3,434
Total General Service		**28,252**	**3,571**		**27,383**	**3,434**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$28,252**	**$3,571**		**$27,383**	**$3,434**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($295,996)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(9.26%)
B. Actual employer payroll	163,072
C. Payment to transition liability/(surplus)	(15,100)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.49%)
B. Actual employer payroll	201,855
C. Payment to transition liability/(surplus)	(21,175)
4. Supplemental payment to transition liability	0
5. Interest	(18,700)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($278,421)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(278,421)	(295,996)
2. Combined valuation payroll	321,095	270,692
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(10.43%)**	**(12.16%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	321,095	270,692
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Bay City/2241
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Bay City/2241

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Bay City -- #2241

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Bay City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Bay City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Bay City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(3.50%)	(3.50%)	(3.50%)	(3.50%)	(3.50%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.27%**	**19.27%**	**27.46%**	**15.03%**	**19.66%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.33%**	**19.33%**	**27.52%**	**15.03%**	**19.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Bay City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$700,813	$820,010
Allocated pre-SLGRP pooled liability/(surplus)	(51,294)	(57,544)
Transition liability/(surplus)	(106,781)	(113,614)
Allocated pooled OPSRP UAL	55,359	65,484
Side account	0	0
Net unfunded pension actuarial accrued liability	598,097	714,336
Combined valuation payroll	367,366	380,361
Net pension UAL as a percentage of payroll	163%	188%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(3.50%)	(3.32%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,209)	($52)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	70,221	8,876	12.54%	67,878	8,512
Total General Service		**70,221**	**8,876**		**67,878**	**8,512**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$70,221**	**$8,876**		**$67,878**	**$8,512**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($113,614)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.11%)
B. Actual employer payroll	175,365
C. Payment to transition liability/(surplus)	(7,207)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.81%)
B. Actual employer payroll	178,424
C. Payment to transition liability/(surplus)	(6,798)
4. Supplemental payment to transition liability	0
5. Interest	(7,172)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($106,781)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(106,781)	(113,614)
2. Combined valuation payroll	367,366	380,361
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.50%)**	**(3.32%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	367,366	380,361
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Boardman/2178
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Boardman/2178

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Boardman -- #2178

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Boardman to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Boardman.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Boardman

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.45%	14.11%	21.07%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.59%)	(0.59%)	(0.59%)	(0.59%)	(0.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.99%**	**23.65%**	**30.61%**	**17.94%**	**22.57%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.05%**	**23.71%**	**30.67%**	**17.94%**	**22.57%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Boardman

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,116,657	$2,264,547
Allocated pre-SLGRP pooled liability/(surplus)	(154,921)	(158,914)
Transition liability/(surplus)	(54,312)	(56,376)
Allocated pooled OPSRP UAL	167,199	180,841
Side account	0	0
Net unfunded pension actuarial accrued liability	2,074,623	2,230,098
Combined valuation payroll	1,109,550	1,050,408
Net pension UAL as a percentage of payroll	187%	212%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.59%)	(0.60%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($12,713)	($143)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$83,286	$14,300	17.48%	$81,078	$14,172
Tier 2 General Service	12.64%	172,818	21,844	12.54%	162,788	20,414
Total General Service		**256,104**	**36,144**		**243,866**	**34,586**
Tier 1 Police & Fire	22.26%	59,668	13,282	22.14%	58,370	12,923
Tier 2 Police & Fire	20.05%	69,518	13,938	19.73%	62,841	12,399
Total Police & Fire		**129,186**	**27,220**		**121,211**	**25,322**
Total		**$385,290**	**$63,364**		**$365,077**	**$59,908**
Employer normal cost rate						
General Service			**14.11%**			**14.18%**
Police & Fire			**21.07%**			**20.89%**
Aggregate (Default)			**16.45%**			**16.41%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($56,376)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.51%)
B. Actual employer payroll	533,939
C. Payment to transition liability/(surplus)	(2,723)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.48%)
B. Actual employer payroll	622,617
C. Payment to transition liability/(surplus)	(2,989)
4. Supplemental payment to transition liability	0
5. Interest	(3,648)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($54,312)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(54,312)	(56,376)
2. Combined valuation payroll	1,109,550	1,050,408
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.59%)**	**(0.60%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,109,550	1,050,408
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Brookings/2216
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Brookings/2216

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Brookings/2216

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Brookings -- #2216

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Brookings to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Brookings.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Brookings

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.96%	13.44%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.96%)	(0.96%)	(0.96%)	(0.96%)	(0.96%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.13%**	**22.61%**	**30.00%**	**17.57%**	**22.20%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.19%**	**22.67%**	**30.06%**	**17.57%**	**22.20%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Brookings

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,987,548	$5,977,974
Allocated pre-SLGRP pooled liability/(surplus)	(365,046)	(419,503)
Transition liability/(surplus)	(209,306)	(219,173)
Allocated pooled OPSRP UAL	393,977	477,385
Side account	0	0
Net unfunded pension actuarial accrued liability	4,807,173	5,816,683
Combined valuation payroll	2,614,469	2,772,878
Net pension UAL as a percentage of payroll	184%	210%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.96%)	(0.88%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($29,957)	($378)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$65,574	$11,259	17.48%	$64,734	$11,316
Tier 2 General Service	12.64%	304,446	38,482	12.54%	362,545	45,463
Total General Service		**370,020**	**49,741**		**427,279**	**56,779**
Tier 1 Police & Fire	22.26%	118,354	26,346	22.14%	117,855	26,093
Tier 2 Police & Fire	20.05%	219,007	43,911	19.73%	256,534	50,614
Total Police & Fire		**337,361**	**70,257**		**374,389**	**76,707**
Total		**$707,381**	**$119,998**		**$801,668**	**$133,486**
Employer normal cost rate						
General Service			**13.44%**			**13.29%**
Police & Fire			**20.83%**			**20.49%**
Aggregate (Default)			**16.96%**			**16.65%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($219,173)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	1,398,277
C. Payment to transition liability/(surplus)	(12,445)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.81%)
B. Actual employer payroll	1,417,432
C. Payment to transition liability/(surplus)	(11,480)
4. Supplemental payment to transition liability	0
5. Interest	(14,058)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($209,306)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(209,306)	(219,173)
2. Combined valuation payroll	2,614,469	2,772,878
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.96%)**	**(0.88%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,614,469	2,772,878
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Burns/2204
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Burns/2204

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Burns -- #2204

October 2018

Secondary Employers

2108 City of Burns

CONTENTS

Executive Summary

Milliman has prepared this report for City of Burns to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Burns.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Burns

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.07%	16.07%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.94%)	(5.94%)	(5.94%)	(5.94%)	(5.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.94%**	**21.94%**	**26.70%**	**14.27%**	**18.90%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.00%**	**22.00%**	**26.76%**	**14.27%**	**18.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Burns

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,445,112	$1,652,072
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(374,174)	(398,892)
Allocated pooled OPSRP UAL	114,153	131,930
Side account	0	0
Net unfunded pension actuarial accrued liability	1,185,091	1,385,110
Combined valuation payroll	757,527	766,312
Net pension UAL as a percentage of payroll	156%	181%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.94%)	(5.79%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,680)	($104)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$185,623	$31,871	17.48%	$180,664	$31,580
Tier 2 General Service	12.64%	59,749	7,552	12.54%	60,546	7,592
Total General Service		**245,372**	**39,423**		**241,210**	**39,172**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$245,372**	**$39,423**		**$241,210**	**$39,172**
Employer normal cost rate						
General Service			**16.07%**			**16.24%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**16.07%**			**16.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($398,892)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.79%)
B. Actual employer payroll	355,814
C. Payment to transition liability/(surplus)	(24,160)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.95%)
B. Actual employer payroll	369,625
C. Payment to transition liability/(surplus)	(25,689)
4. Supplemental payment to transition liability	0
5. Interest	(25,131)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($374,174)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(374,174)	(398,892)
2. Combined valuation payroll	757,527	766,312
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.94%)**	**(5.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	757,527	766,312
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Canby/2109
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Canby/2109

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Canby -- #2109

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Canby to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Canby.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Canby

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.11%	14.53%	20.92%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.61%)	(6.61%)	(6.61%)	(6.61%)	(6.61%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.31%**	**19.73%**	**26.12%**	**13.60%**	**18.23%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.37%**	**19.79%**	**26.18%**	**13.60%**	**18.23%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Canby

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$11,477,006	$13,749,385
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,303,736)	(3,436,689)
Allocated pooled OPSRP UAL	906,594	1,097,988
Side account	0	0
Net unfunded pension actuarial accrued liability	9,079,864	11,410,684
Combined valuation payroll	6,016,238	6,377,640
Net pension UAL as a percentage of payroll	151%	179%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.61%)	(5.99%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($68,935)	($868)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$670,596	$115,141	17.48%	$813,360	$142,175
Tier 2 General Service	12.64%	939,014	118,691	12.54%	923,413	115,796
Total General Service		**1,609,610**	**233,832**		**1,736,773**	**257,971**
Tier 1 Police & Fire	22.26%	429,618	95,633	22.14%	519,239	114,960
Tier 2 Police & Fire	20.05%	663,779	133,088	19.73%	637,295	125,738
Total Police & Fire		**1,093,397**	**228,721**		**1,156,534**	**240,698**
Total		**$2,703,007**	**$462,553**		**$2,893,307**	**$498,669**
Employer normal cost rate						
General Service			**14.53%**			**14.85%**
Police & Fire			**20.92%**			**20.81%**
Aggregate (Default)			**17.11%**			**17.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($3,436,689)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.81%)
B. Actual employer payroll	2,973,139
C. Payment to transition liability/(surplus)	(172,739)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.98%)
B. Actual employer payroll	3,045,257
C. Payment to transition liability/(surplus)	(182,107)
4. Supplemental payment to transition liability	0
5. Interest	(221,893)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,303,736)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(3,303,736)	(3,436,689)
2. Combined valuation payroll	6,016,238	6,377,640
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(6.61%)**	**(5.99%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	6,016,238	6,377,640
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Cannon Beach/2223
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Cannon Beach/2223

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Cannon Beach/2223

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cannon Beach -- #2223

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cannon Beach to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cannon Beach.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Cannon Beach

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.11%	13.84%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.15%)	(2.15%)	(2.15%)	(2.15%)	(2.15%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.09%**	**21.82%**	**28.03%**	**16.38%**	**21.01%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.15%**	**21.88%**	**28.09%**	**16.38%**	**21.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cannon Beach

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,040,082	$4,999,272
Allocated pre-SLGRP pooled liability/(surplus)	(295,700)	(350,823)
Transition liability/(surplus)	(378,144)	(405,331)
Allocated pooled OPSRP UAL	319,135	399,228
Side account	0	0
Net unfunded pension actuarial accrued liability	3,685,373	4,642,346
Combined valuation payroll	2,117,808	2,318,908
Net pension UAL as a percentage of payroll	174%	200%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.15%)	(1.94%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($24,266)	($316)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$179,495	$30,819	17.48%	$368,889	$64,482
Tier 2 General Service	12.64%	495,398	62,618	12.54%	404,071	50,671
Total General Service		**674,893**	**93,437**		**772,960**	**115,153**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	173,153	34,717	19.73%	169,409	33,424
Total Police & Fire		**173,153**	**34,717**		**169,409**	**33,424**
Total		**$848,046**	**$128,154**		**$942,369**	**$148,577**
Employer normal cost rate						
General Service			**13.84%**			**14.90%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**15.11%**			**15.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($405,331)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.48%)
B. Actual employer payroll	1,112,577
C. Payment to transition liability/(surplus)	(27,592)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.29%)
B. Actual employer payroll	1,091,423
C. Payment to transition liability/(surplus)	(24,993)
4. Supplemental payment to transition liability	0
5. Interest	(25,398)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($378,144)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(378,144)	(405,331)
2. Combined valuation payroll	2,117,808	2,318,908
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.15%)**	**(1.94%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,117,808	2,318,908
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Carlton/2198
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Carlton/2198

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Carlton -- #2198

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Carlton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Carlton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Carlton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.27%)	(9.27%)	(9.27%)	(9.27%)	(9.27%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**15.18%**	**15.18%**	**23.37%**	**10.94%**	**15.57%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.24%**	**15.24%**	**23.43%**	**10.94%**	**15.57%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Carlton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,113,057	$1,247,768
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(449,542)	(485,638)
Allocated pooled OPSRP UAL	87,923	99,643
Side account	0	0
Net unfunded pension actuarial accrued liability	751,438	861,773
Combined valuation payroll	583,464	578,776
Net pension UAL as a percentage of payroll	129%	149%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.27%)	(9.33%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,685)	($79)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	168,621	21,314	12.54%	166,142	20,834
Total General Service		**168,621**	**21,314**		**166,142**	**20,834**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	62,326	12,297
Total Police & Fire		**0**	**0**		**62,326**	**12,297**
Total		**$168,621**	**$21,314**		**$228,468**	**$33,131**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**19.73%**
Aggregate (Default)			**12.64%**			**14.50%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($485,638)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(12.59%)
B. Actual employer payroll	259,919
C. Payment to transition liability/(surplus)	(32,500)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(11.49%)
B. Actual employer payroll	294,069
C. Payment to transition liability/(surplus)	(33,789)
4. Supplemental payment to transition liability	0
5. Interest	(30,193)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($449,542)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(449,542)	(485,638)
2. Combined valuation payroll	583,464	578,776
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(9.27%)**	**(9.33%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	583,464	578,776
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Cascade Locks/2182
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Cascade Locks/2182

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cascade Locks -- #2182

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cascade Locks to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cascade Locks.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Cascade Locks

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.18%	17.17%	22.33%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	7.91%	7.91%	7.91%	7.91%	7.91%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**35.22%**	**35.21%**	**40.37%**	**26.44%**	**31.07%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**35.28%**	**35.27%**	**40.43%**	**26.44%**	**31.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cascade Locks

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,393,765	$1,227,820
Allocated pre-SLGRP pooled liability/(surplus)	(102,012)	(86,162)
Transition liability/(surplus)	480,571	506,870
Allocated pooled OPSRP UAL	110,097	98,050
Side account	0	0
Net unfunded pension actuarial accrued liability	1,882,421	1,746,578
Combined valuation payroll	730,611	569,523
Net pension UAL as a percentage of payroll	258%	307%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	7.91%	9.90%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,371)	($78)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$241,529	$41,471	17.48%	$230,498	$40,291
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**241,529**	**41,471**		**230,498**	**40,291**
Tier 1 Police & Fire	22.26%	403	90	22.14%	125	28
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**403**	**90**		**125**	**28**
Total		**$241,932**	**$41,561**		**$230,623**	**$40,319**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**22.33%**			**22.40%**
Aggregate (Default)			**17.18%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$506,870
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	9.42%
B. Actual employer payroll	324,316
C. Payment to transition liability/(surplus)	30,551
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	7.55%
B. Actual employer payroll	371,200
C. Payment to transition liability/(surplus)	28,025
4. Supplemental payment to transition liability	0
5. Interest	32,277
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$480,571**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	480,571	506,870
2. Combined valuation payroll	730,611	569,523
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**7.91%**	**9.90%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	730,611	569,523
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Cave Junction/2194
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Cave Junction/2194

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Cave Junction -- #2194

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Cave Junction to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Cave Junction.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Cave Junction

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.68%	14.68%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.28%)	(1.28%)	(1.28%)	(1.28%)	(1.28%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.53%**	**23.53%**	**29.68%**	**17.25%**	**21.88%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.59%**	**23.59%**	**29.74%**	**17.25%**	**21.88%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Cave Junction

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$887,803	$906,215
Allocated pre-SLGRP pooled liability/(surplus)	(64,980)	(63,593)
Transition liability/(surplus)	(49,451)	(51,182)
Allocated pooled OPSRP UAL	70,130	72,368
Side account	0	0
Net unfunded pension actuarial accrued liability	843,502	863,808
Combined valuation payroll	465,386	420,347
Net pension UAL as a percentage of payroll	181%	206%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.28%)	(1.35%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,332)	($57)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$55,702	$9,564	17.48%	$107,444	$18,781
Tier 2 General Service	12.64%	68,202	8,621	12.54%	53,948	6,765
Total General Service		**123,904**	**18,185**		**161,392**	**25,546**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$123,904**	**$18,185**		**$161,392**	**$25,546**
Employer normal cost rate						
General Service			**14.68%**			**15.83%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.68%**			**15.83%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($51,182)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.08%)
B. Actual employer payroll	234,688
C. Payment to transition liability/(surplus)	(2,535)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.17%)
B. Actual employer payroll	215,169
C. Payment to transition liability/(surplus)	(2,517)
4. Supplemental payment to transition liability	0
5. Interest	(3,321)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($49,451)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(49,451)	(51,182)
2. Combined valuation payroll	465,386	420,347
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.28%)**	**(1.35%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	465,386	420,347
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Central Point/2181
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Central Point/2181

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Central Point -- #2181

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Central Point to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Central Point.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Central Point

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.66%	13.61%	20.69%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.67%)	(2.67%)	(2.67%)	(2.67%)	(2.67%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.80%**	**22.75%**	**29.83%**	**17.54%**	**22.17%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.86%**	**22.81%**	**29.89%**	**17.54%**	**22.17%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Central Point

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$9,061,504	$10,242,227
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,055,912)	(1,111,168)
Allocated pooled OPSRP UAL	715,788	817,916
Side account	0	0
Net unfunded pension actuarial accrued liability	8,721,380	9,948,975
Combined valuation payroll	4,750,034	4,750,848
Net pension UAL as a percentage of payroll	184%	209%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.67%)	(2.60%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($54,427)	($647)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$335,834	$57,663	17.48%	$362,158	$63,305
Tier 2 General Service	12.64%	1,240,359	156,781	12.54%	1,340,702	168,124
Total General Service		**1,576,193**	**214,444**		**1,702,860**	**231,429**
Tier 1 Police & Fire	22.26%	186,869	41,597	22.14%	192,566	42,634
Tier 2 Police & Fire	20.05%	455,916	91,411	19.73%	367,723	72,552
Total Police & Fire		**642,785**	**133,008**		**560,289**	**115,186**
Total		**$2,218,978**	**$347,452**		**$2,263,149**	**$346,615**
Employer normal cost rate						
General Service			**13.61%**			**13.59%**
Police & Fire			**20.69%**			**20.56%**
Aggregate (Default)			**15.66%**			**15.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,111,168)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.65%)
B. Actual employer payroll	2,330,713
C. Payment to transition liability/(surplus)	(61,764)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.74%)
B. Actual employer payroll	2,350,786
C. Payment to transition liability/(surplus)	(64,411)
4. Supplemental payment to transition liability	0
5. Interest	(70,919)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,055,912)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,055,912)	(1,111,168)
2. Combined valuation payroll	4,750,034	4,750,848
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.67%)**	**(2.60%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,750,034	4,750,848
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Coburg/2201
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Coburg/2201

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Coburg -- #2201

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Coburg to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Coburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Coburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.67%	12.64%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.05%)	(11.05%)	(11.05%)	(11.05%)	(11.05%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**16.43%**	**13.40%**	**23.02%**	**9.16%**	**13.79%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**16.49%**	**13.46%**	**23.08%**	**9.16%**	**13.79%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Coburg

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,063,552	$1,333,229
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(512,288)	(540,128)
Allocated pooled OPSRP UAL	84,012	106,468
Side account	0	0
Net unfunded pension actuarial accrued liability	635,276	899,569
Combined valuation payroll	557,513	618,417
Net pension UAL as a percentage of payroll	114%	145%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.05%)	(9.71%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,388)	($84)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	184,961	23,379	12.54%	321,768	40,350
Total General Service		**184,961**	**23,379**		**321,768**	**40,350**
Tier 1 Police & Fire	22.26%	84,909	18,901	22.14%	80,831	17,896
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**84,909**	**18,901**		**80,831**	**17,896**
Total		**$269,870**	**$42,280**		**$402,599**	**$58,246**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**22.26%**			**22.14%**
Aggregate (Default)			**15.67%**			**14.47%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($540,128)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(10.19%)
B. Actual employer payroll	319,834
C. Payment to transition liability/(surplus)	(32,591)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.34%)
B. Actual employer payroll	317,515
C. Payment to transition liability/(surplus)	(29,656)
4. Supplemental payment to transition liability	0
5. Interest	(34,407)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($512,288)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(512,288)	(540,128)
2. Combined valuation payroll	557,513	618,417
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(11.05%)**	**(9.71%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	557,513	618,417
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Columbia City/2271
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Columbia City/2271

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Columbia City/2271

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Columbia City -- #2271

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Columbia City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Columbia City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Columbia City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.68%	17.17%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.06%)	(0.06%)	(0.06%)	(0.06%)	(0.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.75%**	**27.24%**	**32.33%**	**18.47%**	**23.10%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.81%**	**27.30%**	**32.39%**	**18.47%**	**23.10%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Columbia City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,001,651	$1,027,095
Allocated pre-SLGRP pooled liability/(surplus)	(73,312)	(72,076)
Transition liability/(surplus)	(2,691)	(2,871)
Allocated pooled OPSRP UAL	79,123	82,021
Side account	0	0
Net unfunded pension actuarial accrued liability	1,004,771	1,034,169
Combined valuation payroll	525,065	476,417
Net pension UAL as a percentage of payroll	191%	217%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.06%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,016)	($65)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$108,413	$18,615	17.48%	$149,462	$26,126
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**108,413**	**18,615**		**149,462**	**26,126**
Tier 1 Police & Fire	22.26%	12,184	2,712	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**12,184**	**2,712**		**0**	**0**
Total		**$120,597**	**$21,327**		**$149,462**	**$26,126**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**22.26%**			**20.66%**
Aggregate (Default)			**17.68%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,871)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	257,626
C. Payment to transition liability/(surplus)	(155)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	295,302
C. Payment to transition liability/(surplus)	(206)
4. Supplemental payment to transition liability	0
5. Interest	(181)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,691)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,691)	(2,871)
2. Combined valuation payroll	525,065	476,417
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.06%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	525,065	476,417
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Condon/2177
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Condon/2177

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Condon -- #2177

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Condon to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Condon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Condon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	12.05%	12.05%	12.05%	12.05%	12.05%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**36.50%**	**36.50%**	**44.69%**	**32.26%**	**36.89%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**36.56%**	**36.56%**	**44.75%**	**32.26%**	**36.89%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Condon

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$382,665	$501,752
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	200,955	207,992
Allocated pooled OPSRP UAL	30,228	40,069
Side account	0	0
Net unfunded pension actuarial accrued liability	613,848	749,813
Combined valuation payroll	200,593	232,737
Net pension UAL as a percentage of payroll	306%	322%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	12.05%	9.94%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,298)	($32)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	111,851	14,138	12.54%	106,523	13,358
Total General Service		**111,851**	**14,138**		**106,523**	**13,358**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$111,851**	**$14,138**		**$106,523**	**$13,358**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$207,992
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	10.65%
B. Actual employer payroll	92,763
C. Payment to transition liability/(surplus)	9,879
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	10.93%
B. Actual employer payroll	97,479
C. Payment to transition liability/(surplus)	10,655
4. Supplemental payment to transition liability	0
5. Interest	13,497
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$200,955**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	200,955	207,992
2. Combined valuation payroll	200,593	232,737
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**12.05%**	**9.94%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	200,593	232,737
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Coquille/2110
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System’s staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System’s financial condition as of a single date. It can neither predict the System’s future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System’s funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Coquille/2110

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Coquille -- #2110

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Coquille to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Coquille.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Coquille

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.52%	13.87%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.24%	1.24%	1.24%	1.24%	1.24%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.89%**	**25.24%**	**31.42%**	**19.77%**	**24.40%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.95%**	**25.30%**	**31.48%**	**19.77%**	**24.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Coquille

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,005,524	$3,083,138
Allocated pre-SLGRP pooled liability/(surplus)	(219,979)	(216,358)
Transition liability/(surplus)	162,883	169,256
Allocated pooled OPSRP UAL	237,413	246,211
Side account	0	0
Net unfunded pension actuarial accrued liability	3,185,841	3,282,247
Combined valuation payroll	1,575,494	1,430,111
Net pension UAL as a percentage of payroll	202%	230%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	1.24%	1.32%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18,052)	($195)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$69,413	$11,918	17.48%	$64,833	$11,333
Tier 2 General Service	12.64%	187,084	23,647	12.54%	183,105	22,961
Total General Service		**256,497**	**35,565**		**247,938**	**34,294**
Tier 1 Police & Fire	22.26%	0	0	22.14%	80,932	17,918
Tier 2 Police & Fire	20.05%	193,178	38,732	19.73%	190,158	37,518
Total Police & Fire		**193,178**	**38,732**		**271,090**	**55,436**
Total		**$449,675**	**$74,297**		**$519,028**	**$89,730**
Employer normal cost rate						
General Service			**13.87%**			**13.83%**
Police & Fire			**20.05%**			**20.45%**
Aggregate (Default)			**16.52%**			**17.29%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$169,256
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.15%
B. Actual employer payroll	758,974
C. Payment to transition liability/(surplus)	8,728
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	1.12%
B. Actual employer payroll	766,447
C. Payment to transition liability/(surplus)	8,585
4. Supplemental payment to transition liability	0
5. Interest	10,940
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$162,883**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	162,883	169,256
2. Combined valuation payroll	1,575,494	1,430,111
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**1.24%**	**1.32%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,575,494	1,430,111
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Corvallis/2155
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Corvallis/2155

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Corvallis -- #2155

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Corvallis to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Corvallis.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Corvallis

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.14%	14.71%	21.34%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.18%)	(5.18%)	(5.18%)	(5.18%)	(5.18%)
Side account rate relief [2]	(3.22%)	(3.22%)	(3.22%)	(3.22%)	(3.22%)
Net pension contribution rate	**20.55%**	**18.12%**	**24.75%**	**11.81%**	**16.44%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.61%**	**18.18%**	**24.81%**	**11.81%**	**16.44%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Corvallis

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$56,399,282	$62,688,834
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(12,730,453)	(13,323,171)
Allocated pooled OPSRP UAL	4,455,102	5,006,160
Side account	7,923,954	7,691,381
Net unfunded pension actuarial accrued liability	40,199,977	46,680,442
Combined valuation payroll	29,564,464	29,078,160
Net pension UAL as a percentage of payroll	136%	161%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.18%)	(5.09%)
Side account rate relief	(3.22%)	(2.94%)
Allocated pooled RHIA UAL	($338,755)	($3,959)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$3,774,204	$648,031	17.48%	$4,697,119	$821,056
Tier 2 General Service	12.64%	4,490,225	567,564	12.54%	4,631,036	580,732
Total General Service		**8,264,429**	**1,215,595**		**9,328,155**	**1,401,788**
Tier 1 Police & Fire	22.26%	2,793,174	621,761	22.14%	3,212,894	711,335
Tier 2 Police & Fire	20.05%	1,983,360	397,664	19.73%	1,897,491	374,375
Total Police & Fire		**4,776,534**	**1,019,425**		**5,110,385**	**1,085,710**
Total		**$13,040,963**	**$2,235,020**		**$14,438,540**	**$2,487,498**
Employer normal cost rate						
General Service			**14.71%**			**15.03%**
Police & Fire			**21.34%**			**21.25%**
Aggregate (Default)			**17.14%**			**17.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($13,323,171)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.61%)
B. Actual employer payroll	14,614,358
C. Payment to transition liability/(surplus)	(673,722)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.97%)
B. Actual employer payroll	15,573,942
C. Payment to transition liability/(surplus)	(774,026)
4. Supplemental payment to transition liability	0
5. Interest	(855,030)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($12,730,453)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	**December 31, 2016**
1. Total transition liability/(surplus)	(12,730,453)	(13,323,171)
2. Combined valuation payroll	29,564,464	29,078,160
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.18%)**	**(5.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$7,691,381**	**$7,691,381**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(908,451)	(908,451)
5. Side account earnings during 2017		1,141,524	1,141,524
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$7,923,954**	**$7,923,954**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$7,923,954	$7,691,381
Side Account 2	0	0
Side Account 3	0	0
Total	**$7,923,954**	**$7,691,381**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$7,923,954	$7,691,381
2. Combined valuation payroll	29,564,464	29,078,160
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(3.22%)	(2.94%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Creswell/2236
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Creswell/2236

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Creswell/2236

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman’s prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman’s consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Creswell -- #2236

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Creswell to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Creswell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Creswell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.36%	13.36%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.73%)	(1.73%)	(1.73%)	(1.73%)	(1.73%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.44%**	**23.44%**	**30.91%**	**18.48%**	**23.11%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.50%**	**23.50%**	**30.97%**	**18.48%**	**23.11%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Creswell

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,822,531	$1,821,536
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(137,345)	(154,703)
Allocated pooled OPSRP UAL	143,966	145,463
Side account	0	0
Net unfunded pension actuarial accrued liability	1,829,152	1,812,296
Combined valuation payroll	955,370	844,918
Net pension UAL as a percentage of payroll	191%	214%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.73%)	(2.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($10,947)	($115)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$59,334	$10,188	17.48%	$58,070	$10,151
Tier 2 General Service	12.64%	315,331	39,858	12.54%	302,862	37,979
Total General Service		**374,665**	**50,046**		**360,932**	**48,130**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$374,665**	**$50,046**		**$360,932**	**$48,130**
Employer normal cost rate						
General Service			**13.36%**			**13.33%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.36%**			**13.33%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($154,703)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.33%)
B. Actual employer payroll	445,723
C. Payment to transition liability/(surplus)	(14,843)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.50%)
B. Actual employer payroll	469,580
C. Payment to transition liability/(surplus)	(11,740)
4. Supplemental payment to transition liability	0
5. Interest	(9,225)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($137,345)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(137,345)	(154,703)
2. Combined valuation payroll	955,370	844,918
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.73%)**	**(2.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	955,370	844,918
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Dallas/2202
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Dallas/2202

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dallas -- #2202

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dallas to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dallas.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Dallas

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.70%	13.66%	20.90%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(0.29%)	(0.29%)	(0.29%)	(0.29%)	(0.29%)
Net pension contribution rate	**26.54%**	**23.50%**	**30.74%**	**18.24%**	**22.87%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.60%**	**23.56%**	**30.80%**	**18.24%**	**22.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dallas

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$9,273,542	$10,133,112
Allocated pre-SLGRP pooled liability/(surplus)	(678,744)	(711,088)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	732,537	809,203
Side account	116,389	114,162
Net unfunded pension actuarial accrued liability	9,210,946	10,117,065
Combined valuation payroll	4,861,184	4,700,235
Net pension UAL as a percentage of payroll	189%	215%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	(0.29%)	(0.27%)
Allocated pooled RHIA UAL	($55,700)	($640)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$262,609	$45,090	17.48%	$257,285	$44,973
Tier 2 General Service	12.64%	908,782	114,870	12.54%	1,015,535	127,348
Total General Service		**1,171,391**	**159,960**		**1,272,820**	**172,321**
Tier 1 Police & Fire	22.26%	326,451	72,668	22.14%	411,535	91,114
Tier 2 Police & Fire	20.05%	522,843	104,830	19.73%	452,381	89,255
Total Police & Fire		**849,294**	**177,498**		**863,916**	**180,369**
Total		**$2,020,685**	**$337,458**		**$2,136,736**	**$352,690**
Employer normal cost rate						
General Service			**13.66%**			**13.54%**
Police & Fire			**20.90%**			**20.88%**
Aggregate (Default)			**16.70%**			**16.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,861,184	4,700,235
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$114,162**	**$114,162**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(14,027)	(14,027)
5. Side account earnings during 2017		16,754	16,754
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$116,389**	**$116,389**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$116,389	$114,162
Side Account 2	0	0
Side Account 3	0	0
Total	**$116,389**	**$114,162**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$116,389	$114,162
2. Combined valuation payroll	4,861,184	4,700,235
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(0.29%)	(0.27%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Dayton/2252
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Dayton/2252

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Dayton/2252

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dayton -- #2252

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dayton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dayton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Dayton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.17%	15.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.20%)	(7.20%)	(7.20%)	(7.20%)	(7.20%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.10%**	**18.10%**	**23.76%**	**11.33%**	**15.96%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.16%**	**18.16%**	**23.82%**	**11.33%**	**15.96%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dayton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$698,574	$965,374
Allocated pre-SLGRP pooled liability/(surplus)	(51,130)	(67,745)
Transition liability/(surplus)	(219,268)	(237,785)
Allocated pooled OPSRP UAL	55,182	77,092
Side account	0	0
Net unfunded pension actuarial accrued liability	483,358	736,936
Combined valuation payroll	366,192	447,788
Net pension UAL as a percentage of payroll	132%	165%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(7.20%)	(5.90%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,196)	($61)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$96,538	$16,576	17.48%	$93,292	$16,307
Tier 2 General Service	12.64%	76,403	9,657	12.54%	71,560	8,974
Total General Service		**172,941**	**26,233**		**164,852**	**25,281**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$172,941**	**$26,233**		**$164,852**	**$25,281**
Employer normal cost rate						
General Service			**15.17%**			**15.34%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.17%**			**15.34%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($237,785)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.88%)
B. Actual employer payroll	223,185
C. Payment to transition liability/(surplus)	(17,587)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.12%)
B. Actual employer payroll	219,900
C. Payment to transition liability/(surplus)	(15,657)
4. Supplemental payment to transition liability	0
5. Interest	(14,727)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($219,268)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(219,268)	(237,785)
2. Combined valuation payroll	366,192	447,788
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.20%)**	**(5.90%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	366,192	447,788
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Depoe Bay/2294
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Depoe Bay/2294

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Depoe Bay -- #2294

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Depoe Bay to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Depoe Bay.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Depoe Bay

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.23%	14.23%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.10%)	(0.10%)	(0.10%)	(0.10%)	(0.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.26%**	**24.26%**	**30.86%**	**18.43%**	**23.06%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.32%**	**24.32%**	**30.92%**	**18.43%**	**23.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Depoe Bay

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$960,120	$1,468,885
Allocated pre-SLGRP pooled liability/(surplus)	(70,273)	(103,079)
Transition liability/(surplus)	(4,088)	(4,238)
Allocated pooled OPSRP UAL	75,842	117,301
Side account	0	0
Net unfunded pension actuarial accrued liability	961,601	1,478,869
Combined valuation payroll	503,294	681,341
Net pension UAL as a percentage of payroll	191%	217%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.10%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,767)	($93)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$87,868	$15,087	17.48%	$164,618	$28,775
Tier 2 General Service	12.64%	162,586	20,551	12.54%	213,086	26,721
Total General Service		**250,454**	**35,638**		**377,704**	**55,496**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$250,454**	**$35,638**		**$377,704**	**$55,496**
Employer normal cost rate						
General Service			**14.23%**			**14.69%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.23%**			**14.69%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($4,238)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	321,954
C. Payment to transition liability/(surplus)	(225)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	284,416
C. Payment to transition liability/(surplus)	(200)
4. Supplemental payment to transition liability	0
5. Interest	(275)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,088)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(4,088)	(4,238)
2. Combined valuation payroll	503,294	681,341
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.10%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	503,294	681,341
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Drain/2131
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Drain/2131

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Drain/2131

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Drain -- #2131

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Drain to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Drain.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Drain

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.30%**	**27.30%**	**30.96%**	**18.53%**	**23.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.36%**	**27.36%**	**31.02%**	**18.53%**	**23.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Drain

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,007,622	$1,115,442
Allocated pre-SLGRP pooled liability/(surplus)	(73,749)	(78,276)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	79,594	89,076
Side account	0	0
Net unfunded pension actuarial accrued liability	1,013,467	1,126,242
Combined valuation payroll	528,194	517,397
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,052)	($70)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$81,830	$14,050	17.48%	$81,099	$14,176
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**81,830**	**14,050**		**81,099**	**14,176**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$81,830**	**$14,050**		**$81,099**	**$14,176**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	528,194	517,397
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	528,194	517,397
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Dundee/2245
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Dundee/2245

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dundee -- #2245

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dundee to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dundee.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Dundee

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.89%	14.42%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.03%)	(3.03%)	(3.03%)	(3.03%)	(3.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.67%**	**23.20%**	**31.04%**	**17.18%**	**21.81%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.73%**	**23.26%**	**31.10%**	**17.18%**	**21.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dundee

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,159,922	$1,297,631
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(153,032)	(162,250)
Allocated pooled OPSRP UAL	91,625	103,625
Side account	0	0
Net unfunded pension actuarial accrued liability	1,098,515	1,239,006
Combined valuation payroll	608,030	601,905
Net pension UAL as a percentage of payroll	181%	206%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.03%)	(3.00%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,967)	($82)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$118,580	$20,360	17.48%	$116,816	$20,419
Tier 2 General Service	12.64%	183,683	23,218	12.54%	178,113	22,335
Total General Service		**302,263**	**43,578**		**294,929**	**42,754**
Tier 1 Police & Fire	22.26%	69,930	15,566	22.14%	68,415	15,147
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**69,930**	**15,566**		**68,415**	**15,147**
Total		**$372,193**	**$59,144**		**$363,344**	**$57,901**
Employer normal cost rate						
General Service			**14.42%**			**14.50%**
Police & Fire			**22.26%**			**22.14%**
Aggregate (Default)			**15.89%**			**15.94%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($162,250)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.60%)
B. Actual employer payroll	287,911
C. Payment to transition liability/(surplus)	(10,365)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.07%)
B. Actual employer payroll	297,440
C. Payment to transition liability/(surplus)	(9,131)
4. Supplemental payment to transition liability	0
5. Interest	(10,278)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($153,032)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(153,032)	(162,250)
2. Combined valuation payroll	608,030	601,905
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.03%)**	**(3.00%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	608,030	601,905
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Dunes City/2299
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Dunes City/2299

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Dunes City/2299

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Dunes City -- #2299

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Dunes City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Dunes City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Dunes City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	11.63%	11.63%	11.63%	11.63%	11.63%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**37.59%**	**36.38%**	**42.59%**	**30.16%**	**34.79%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**37.65%**	**36.44%**	**42.65%**	**30.16%**	**34.79%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Dunes City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$57,662	$12,543
Allocated pre-SLGRP pooled liability/(surplus)	(4,220)	(880)
Transition liability/(surplus)	29,208	29,870
Allocated pooled OPSRP UAL	4,555	1,002
Side account	0	0
Net unfunded pension actuarial accrued liability	87,205	42,535
Combined valuation payroll	30,226	5,818
Net pension UAL as a percentage of payroll	289%	731%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	11.63%	57.08%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($346)	($1)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$29,870
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	6.06%
B. Actual employer payroll	13,686
C. Payment to transition liability/(surplus)	829
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	12.22%
B. Actual employer payroll	14,682
C. Payment to transition liability/(surplus)	1,795
4. Supplemental payment to transition liability	0
5. Interest	1,962
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$29,208**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	29,208	29,870
2. Combined valuation payroll	30,226	5,818
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**11.63%**	**57.08%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	30,226	5,818
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Durham/2269
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Durham/2269

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Durham -- #2269

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Durham to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Durham.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Durham

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.21%)	(3.21%)	(3.21%)	(3.21%)	(3.21%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.43%**	**23.22%**	**29.43%**	**17.00%**	**21.63%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.49%**	**23.28%**	**29.49%**	**17.00%**	**21.63%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Durham

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$209,333	$204,040
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(29,254)	(33,644)
Allocated pooled OPSRP UAL	16,536	16,294
Side account	0	0
Net unfunded pension actuarial accrued liability	196,615	186,690
Combined valuation payroll	109,732	94,644
Net pension UAL as a percentage of payroll	179%	197%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.21%)	(3.95%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,257)	($13)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($33,644)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.48%)
B. Actual employer payroll	54,932
C. Payment to transition liability/(surplus)	(4,109)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.56%)
B. Actual employer payroll	49,265
C. Payment to transition liability/(surplus)	(2,246)
4. Supplemental payment to transition liability	0
5. Interest	(1,965)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($29,254)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(29,254)	(33,644)
2. Combined valuation payroll	109,732	94,644
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.21%)**	**(3.95%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	109,732	94,644
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Echo/2225
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Echo/2225

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Echo/2225

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Echo -- #2225

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Echo to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Echo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Echo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.68%	16.68%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.97%	5.97%	5.97%	5.97%	5.97%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**32.78%**	**32.78%**	**36.93%**	**24.50%**	**29.13%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**32.84%**	**32.84%**	**36.99%**	**24.50%**	**29.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Echo

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$427,273	$462,909
Allocated pre-SLGRP pooled liability/(surplus)	(31,273)	(32,485)
Transition liability/(surplus)	111,176	117,081
Allocated pooled OPSRP UAL	33,751	36,967
Side account	0	0
Net unfunded pension actuarial accrued liability	540,927	584,472
Combined valuation payroll	223,976	214,720
Net pension UAL as a percentage of payroll	242%	272%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	5.97%	6.06%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,566)	($29)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$134,731	$23,133	17.48%	$129,401	$22,619
Tier 2 General Service	12.64%	16,318	2,063	12.54%	15,573	1,953
Total General Service		**151,049**	**25,196**		**144,974**	**24,572**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$151,049**	**$25,196**		**$144,974**	**$24,572**
Employer normal cost rate						
General Service			**16.68%**			**16.95%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**16.68%**			**16.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$117,081
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	6.26%
B. Actual employer payroll	100,604
C. Payment to transition liability/(surplus)	6,298
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	6.15%
B. Actual employer payroll	115,032
C. Payment to transition liability/(surplus)	7,074
4. Supplemental payment to transition liability	0
5. Interest	7,467
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$111,176**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	111,176	117,081
2. Combined valuation payroll	223,976	214,720
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**5.97%**	**6.06%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	223,976	214,720
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Elgin/2205
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Elgin/2205

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Elgin -- #2205

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Elgin to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Elgin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Elgin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(30.83%)	(30.83%)	(30.83%)	(30.83%)	(30.83%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.13%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.19%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Elgin

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$817,428	$973,069
Allocated pre-SLGRP pooled liability/(surplus)	(59,829)	(68,285)
Transition liability/(surplus)	(1,097,912)	(1,077,986)
Allocated pooled OPSRP UAL	64,570	77,707
Side account	0	0
Net unfunded pension actuarial accrued liability	(275,743)	(95,495)
Combined valuation payroll	428,495	451,357
Net pension UAL as a percentage of payroll	(64%)	(21%)
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(30.83%)	(26.55%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,910)	($61)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	11,966	1,513	12.54%	40,454	5,073
Total General Service		**11,966**	**1,513**		**40,454**	**5,073**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$11,966**	**$1,513**		**$40,454**	**$5,073**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,077,986)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(17.13%)
B. Actual employer payroll	228,642
C. Payment to transition liability/(surplus)	(25,715)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(20.42%)
B. Actual employer payroll	204,022
C. Payment to transition liability/(surplus)	(28,099)
4. Supplemental payment to transition liability	0
5. Interest	(73,740)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,097,912)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,097,912)	(1,077,986)
2. Combined valuation payroll	428,495	451,357
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(30.83%)**	**(26.55%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	428,495	451,357
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Elkton/2305
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Elkton/2305

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Elkton/2305

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Elkton -- #2305

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Elkton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Elkton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Elkton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.08%	0.08%	0.08%	0.08%	0.08%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.85%**	**22.85%**	**31.04%**	**18.61%**	**23.24%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.91%**	**22.91%**	**31.10%**	**18.61%**	**23.24%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Elkton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$76,717	$79,509
Allocated pre-SLGRP pooled liability/(surplus)	(5,615)	(5,579)
Transition liability/(surplus)	255	259
Allocated pooled OPSRP UAL	6,060	6,349
Side account	0	0
Net unfunded pension actuarial accrued liability	77,417	80,538
Combined valuation payroll	40,215	36,880
Net pension UAL as a percentage of payroll	193%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.08%	0.08%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($461)	($5)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	40,215	5,083	12.54%	36,880	4,625
Total General Service		**40,215**	**5,083**		**36,880**	**4,625**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$40,215**	**$5,083**		**$36,880**	**$4,625**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$259
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.04%
B. Actual employer payroll	19,785
C. Payment to transition liability/(surplus)	8
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.07%
B. Actual employer payroll	19,041
C. Payment to transition liability/(surplus)	13
4. Supplemental payment to transition liability	0
5. Interest	17
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$255**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	255	259
2. Combined valuation payroll	40,215	36,880
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.08%**	**0.08%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	40,215	36,880
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Enterprise/2180
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Enterprise/2180

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Enterprise -- #2180

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Enterprise to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Enterprise.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Enterprise

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.63%	14.63%	20.20%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.06%)	(0.06%)	(0.06%)	(0.06%)	(0.06%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.38%**	**26.38%**	**31.95%**	**20.15%**	**24.78%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.44%**	**26.44%**	**32.01%**	**20.15%**	**24.78%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Enterprise

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$1,561,557	$1,490,347
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(4,088)	(4,286)
Allocated pooled OPSRP UAL	123,351	119,015
Side account	0	0
Net unfunded pension actuarial accrued liability	1,680,820	1,605,076
Combined valuation payroll	818,567	691,296
Net pension UAL as a percentage of payroll	205%	232%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.06%)	(0.07%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,379)	($94)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$154,090	$26,457	17.48%	$144,611	$25,278
Tier 2 General Service	12.64%	196,856	24,883	12.54%	191,197	23,976
Total General Service		**350,946**	**51,340**		**335,808**	**49,254**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	99	20	19.73%	416	82
Total Police & Fire		**99**	**20**		**416**	**82**
Total		**$351,045**	**$51,360**		**$336,224**	**$49,336**
Employer normal cost rate						
General Service			**14.63%**			**14.67%**
Police & Fire			**20.20%**			**19.71%**
Aggregate (Default)			**14.63%**			**14.67%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($4,286)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.06%)
B. Actual employer payroll	346,282
C. Payment to transition liability/(surplus)	(208)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.07%)
B. Actual employer payroll	379,335
C. Payment to transition liability/(surplus)	(265)
4. Supplemental payment to transition liability	0
5. Interest	(275)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,088)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(4,088)	(4,286)
2. Combined valuation payroll	818,567	691,296
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.06%)**	**(0.07%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	818,567	691,296
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Estacada/2179
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Estacada/2179

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Estacada/2179

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Estacada -- #2179

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Estacada to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Estacada.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Estacada

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.15%	15.15%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.64%	0.64%	0.64%	0.64%	0.64%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.92%**	**25.92%**	**31.60%**	**19.17%**	**23.80%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.98%**	**25.98%**	**31.66%**	**19.17%**	**23.80%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Estacada

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$2,253,120	$2,305,284
Allocated pre-SLGRP pooled liability/(surplus)	(164,909)	(161,773)
Transition liability/(surplus)	63,069	69,559
Allocated pooled OPSRP UAL	177,979	184,094
Side account	0	0
Net unfunded pension actuarial accrued liability	2,329,259	2,397,164
Combined valuation payroll	1,181,084	1,069,304
Net pension UAL as a percentage of payroll	197%	224%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.64%	0.72%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13,533)	($146)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$236,473	$40,602	17.48%	$226,063	$39,516
Tier 2 General Service	12.64%	190,237	24,046	12.54%	187,471	23,509
Total General Service		**426,710**	**64,648**		**413,534**	**63,025**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$426,710**	**$64,648**		**$413,534**	**$63,025**
Employer normal cost rate						
General Service			**15.15%**			**15.24%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.15%**			**15.24%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$69,559
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.97%
B. Actual employer payroll	568,614
C. Payment to transition liability/(surplus)	5,516
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.85%
B. Actual employer payroll	613,032
C. Payment to transition liability/(surplus)	5,210
4. Supplemental payment to transition liability	0
5. Interest	4,236
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$63,069**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	63,069	69,559
2. Combined valuation payroll	1,181,084	1,069,304
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.64%**	**0.72%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,181,084	1,069,304
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Fairview/2208
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Fairview/2208

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Fairview -- #2208

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Fairview to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Fairview.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Fairview

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.80%	14.49%	20.86%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.51%	10.51%	10.51%	10.51%	10.51%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.62%)	(4.62%)	(4.62%)	(4.62%)	(4.62%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.14%**	**21.83%**	**28.20%**	**15.74%**	**20.37%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.20%**	**21.89%**	**28.26%**	**15.74%**	**20.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Fairview

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,218,444	$5,829,033
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(849,816)	(875,073)
Allocated pooled OPSRP UAL	333,224	465,491
Side account	0	0
Net unfunded pension actuarial accrued liability	3,701,852	5,419,451
Combined valuation payroll	2,211,306	2,703,792
Net pension UAL as a percentage of payroll	167%	200%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.62%)	(3.60%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25,338)	($368)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$268,745	$46,144	17.48%	$271,100	$47,388
Tier 2 General Service	12.64%	389,270	49,204	12.54%	438,384	54,973
Total General Service		**658,015**	**95,348**		**709,484**	**102,361**
Tier 1 Police & Fire	22.26%	61,953	13,791	22.14%	100,611	22,275
Tier 2 Police & Fire	20.05%	107,803	21,615	19.73%	169,163	33,376
Total Police & Fire		**169,756**	**35,406**		**269,774**	**55,651**
Total		**$827,771**	**$130,754**		**$979,258**	**$158,012**
Employer normal cost rate						
General Service			**14.49%**			**14.43%**
Police & Fire			**20.86%**			**20.63%**
Aggregate (Default)			**15.80%**			**16.14%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($875,073)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.03%)
B. Actual employer payroll	1,331,084
C. Payment to transition liability/(surplus)	(53,643)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.67%)
B. Actual employer payroll	781,756
C. Payment to transition liability/(surplus)	(28,691)
4. Supplemental payment to transition liability	0
5. Interest	(57,077)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($849,816)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(849,816)	(875,073)
2. Combined valuation payroll	2,211,306	2,703,792
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.62%)**	**(3.60%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,211,306	2,703,792
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Falls City/2224
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Falls City/2224

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Falls City -- #2224

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Falls City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Falls City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Falls City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.21%	15.21%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.20%)	(5.20%)	(5.20%)	(5.20%)	(5.20%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.82%**	**21.82%**	**27.44%**	**15.01%**	**19.64%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.88%**	**21.88%**	**27.50%**	**15.01%**	**19.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Falls City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$314,520	$337,927
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(71,212)	(74,312)
Allocated pooled OPSRP UAL	24,845	26,986
Side account	0	0
Net unfunded pension actuarial accrued liability	268,153	290,601
Combined valuation payroll	164,871	156,747
Net pension UAL as a percentage of payroll	163%	185%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.20%)	(5.27%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,889)	($21)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$53,608	$9,204	17.48%	$51,933	$9,078
Tier 2 General Service	12.64%	40,739	5,149	12.54%	38,125	4,781
Total General Service		**94,347**	**14,353**		**90,058**	**13,859**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$94,347**	**$14,353**		**$90,058**	**$13,859**
Employer normal cost rate						
General Service			**15.21%**			**15.39%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.21%**			**15.39%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($74,312)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.45%)
B. Actual employer payroll	79,635
C. Payment to transition liability/(surplus)	(3,544)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.56%)
B. Actual employer payroll	78,044
C. Payment to transition liability/(surplus)	(4,339)
4. Supplemental payment to transition liability	0
5. Interest	(4,783)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($71,212)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(71,212)	(74,312)
2. Combined valuation payroll	164,871	156,747
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.20%)**	**(5.27%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	164,871	156,747
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Florence/2291
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Florence/2291

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Florence/2291

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Florence -- #2291

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Florence to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Florence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Florence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.05%	13.87%	21.20%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(10.07%)	(10.07%)	(10.07%)	(10.07%)	(10.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.79%**	**15.61%**	**22.94%**	**10.14%**	**14.77%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.85%**	**15.67%**	**23.00%**	**10.14%**	**14.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Florence

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,911,916	$6,635,472
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,594,416)	(2,721,015)
Allocated pooled OPSRP UAL	466,995	529,891
Side account	0	0
Net unfunded pension actuarial accrued liability	3,784,495	4,444,348
Combined valuation payroll	3,099,022	3,077,858
Net pension UAL as a percentage of payroll	122%	144%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(10.07%)	(9.83%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($35,509)	($419)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$180,421	$30,978	17.48%	$252,119	$44,070
Tier 2 General Service	12.64%	481,480	60,859	12.54%	471,575	59,136
Total General Service		**661,901**	**91,837**		**723,694**	**103,206**
Tier 1 Police & Fire	22.26%	264,395	58,854	22.14%	352,427	78,027
Tier 2 Police & Fire	20.05%	242,550	48,631	19.73%	230,505	45,479
Total Police & Fire		**506,945**	**107,485**		**582,932**	**123,506**
Total		**$1,168,846**	**$199,322**		**$1,306,626**	**$226,712**
Employer normal cost rate						
General Service			**13.87%**			**14.26%**
Police & Fire			**21.20%**			**21.19%**
Aggregate (Default)			**17.05%**			**17.35%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,721,015)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(9.22%)
B. Actual employer payroll	1,501,837
C. Payment to transition liability/(surplus)	(138,469)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.82%)
B. Actual employer payroll	1,653,581
C. Payment to transition liability/(surplus)	(162,382)
4. Supplemental payment to transition liability	0
5. Interest	(174,252)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,594,416)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,594,416)	(2,721,015)
2. Combined valuation payroll	3,099,022	3,077,858
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(10.07%)**	**(9.83%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,099,022	3,077,858
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Garibaldi/2220
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Garibaldi/2220

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Garibaldi/2220

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Garibaldi -- #2220

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Garibaldi to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Garibaldi.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Garibaldi

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.75%	14.75%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	1.28%	1.28%	1.28%	1.28%	1.28%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.84%**	**27.84%**	**33.92%**	**21.49%**	**26.12%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.90%**	**27.90%**	**33.98%**	**21.49%**	**26.12%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Garibaldi

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$784,867	$893,620
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	43,832	47,615
Allocated pooled OPSRP UAL	61,998	71,362
Side account	0	0
Net unfunded pension actuarial accrued liability	890,697	1,012,597
Combined valuation payroll	411,427	414,505
Net pension UAL as a percentage of payroll	216%	244%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	1.28%	1.28%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,714)	($56)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$77,632	$13,329	17.48%	$68,928	$12,049
Tier 2 General Service	12.64%	89,230	11,279	12.54%	86,726	10,875
Total General Service		**166,862**	**24,608**		**155,654**	**22,924**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$166,862**	**$24,608**		**$155,654**	**$22,924**
Employer normal cost rate						
General Service			**14.75%**			**14.73%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.75%**			**14.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$47,615
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.92%
B. Actual employer payroll	207,414
C. Payment to transition liability/(surplus)	3,982
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	1.25%
B. Actual employer payroll	219,551
C. Payment to transition liability/(surplus)	2,745
4. Supplemental payment to transition liability	0
5. Interest	2,944
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$43,832**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	43,832	47,615
2. Combined valuation payroll	411,427	414,505
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**1.28%**	**1.28%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	411,427	414,505
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Gaston/2242
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Gaston/2242

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Gaston/2242

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gaston -- #2242

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gaston to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gaston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Gaston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(51.43%)	(51.43%)	(51.43%)	(51.43%)	(51.43%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gaston

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$191,455	$42,477
Allocated pre-SLGRP pooled liability/(surplus)	(14,013)	(2,981)
Transition liability/(surplus)	(429,057)	(411,934)
Allocated pooled OPSRP UAL	15,123	3,392
Side account	0	0
Net unfunded pension actuarial accrued liability	(236,492)	(369,046)
Combined valuation payroll	100,361	19,703
Net pension UAL as a percentage of payroll	(236%)	(1,873%)
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(51.43%)	(232.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,150)	($3)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($411,934)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(18.69%)
B. Actual employer payroll	38,324
C. Payment to transition liability/(surplus)	(4,074)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(23.12%)
B. Actual employer payroll	56,070
C. Payment to transition liability/(surplus)	(7,620)
4. Supplemental payment to transition liability	0
5. Interest	(28,817)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($429,057)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(429,057)	(411,934)
2. Combined valuation payroll	100,361	19,703
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(51.43%)**	**(232.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	100,361	19,703
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Gladstone/2304
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Gladstone/2304

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gladstone -- #2304

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gladstone to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gladstone.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Gladstone

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.80%	15.02%	21.00%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.29%)	(4.29%)	(4.29%)	(4.29%)	(4.29%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.32%**	**22.54%**	**28.52%**	**15.92%**	**20.55%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.38%**	**22.60%**	**28.58%**	**15.92%**	**20.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gladstone

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$6,722,828	$6,454,592
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,256,438)	(1,363,657)
Allocated pooled OPSRP UAL	531,051	515,446
Side account	0	0
Net unfunded pension actuarial accrued liability	5,997,441	5,606,381
Combined valuation payroll	3,524,102	2,993,957
Net pension UAL as a percentage of payroll	170%	187%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.29%)	(5.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($40,380)	($408)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$466,542	$80,105	17.48%	$430,046	$75,172
Tier 2 General Service	12.64%	421,518	53,280	12.54%	397,702	49,872
Total General Service		**888,060**	**133,385**		**827,748**	**125,044**
Tier 1 Police & Fire	22.26%	330,584	73,588	22.14%	297,439	65,853
Tier 2 Police & Fire	20.05%	442,037	88,628	19.73%	322,622	63,653
Total Police & Fire		**772,621**	**162,216**		**620,061**	**129,506**
Total		**$1,660,681**	**$295,601**		**$1,447,809**	**$254,550**
Employer normal cost rate						
General Service			**15.02%**			**15.11%**
Police & Fire			**21.00%**			**20.89%**
Aggregate (Default)			**17.80%**			**17.58%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,363,657)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,578,460
C. Payment to transition liability/(surplus)	(90,761)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.75%)
B. Actual employer payroll	1,753,851
C. Payment to transition liability/(surplus)	(100,846)
4. Supplemental payment to transition liability	0
5. Interest	(84,388)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,256,438)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,256,438)	(1,363,657)
2. Combined valuation payroll	3,524,102	2,993,957
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.29%)**	**(5.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,524,102	2,993,957
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Gold Hill/2274
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Gold Hill/2274

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Gold Hill/2274

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Gold Hill -- #2274

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Gold Hill to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Gold Hill.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Gold Hill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.29%	13.29%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(27.91%)	(27.91%)	(27.91%)	(27.91%)	(27.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**3.05%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**3.11%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Gold Hill

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$198,755	$282,167
Allocated pre-SLGRP pooled liability/(surplus)	(14,547)	(19,801)
Transition liability/(surplus)	(241,659)	(237,042)
Allocated pooled OPSRP UAL	15,700	22,533
Side account	0	0
Net unfunded pension actuarial accrued liability	(41,751)	47,857
Combined valuation payroll	104,187	130,883
Net pension UAL as a percentage of payroll	(40%)	37%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(27.91%)	(20.14%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,194)	($18)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$9,627	$1,653	17.48%	$0	$0
Tier 2 General Service	12.64%	57,051	7,211	12.54%	105,758	13,262
Total General Service		**66,678**	**8,864**		**105,758**	**13,262**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$66,678**	**$8,864**		**$105,758**	**$13,262**
Employer normal cost rate						
General Service			**13.29%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.29%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($237,042)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(11.28%)
B. Actual employer payroll	40,245
C. Payment to transition liability/(surplus)	(4,501)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(12.37%)
B. Actual employer payroll	57,497
C. Payment to transition liability/(surplus)	(7,113)
4. Supplemental payment to transition liability	0
5. Interest	(16,231)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($241,659)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(241,659)	(237,042)
2. Combined valuation payroll	104,187	130,883
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(27.91%)**	**(20.14%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	104,187	130,883
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Grants Pass/2113
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Grants Pass/2113

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Grants Pass/2113

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Grants Pass -- #2113

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Grants Pass to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Grants Pass.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Grants Pass

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.64%	14.07%	20.72%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.26%)	(1.26%)	(1.26%)	(1.26%)	(1.26%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.19%**	**24.62%**	**31.27%**	**18.95%**	**23.58%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.25%**	**24.68%**	**31.33%**	**18.95%**	**23.58%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Grants Pass

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$27,147,626	$30,225,570
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,950,085)	(1,999,119)
Allocated pooled OPSRP UAL	2,144,450	2,413,732
Side account	0	0
Net unfunded pension actuarial accrued liability	27,341,991	30,640,183
Combined valuation payroll	14,230,766	14,020,104
Net pension UAL as a percentage of payroll	192%	219%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.26%)	(1.24%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($163,059)	($1,909)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$864,296	$148,400	17.48%	$1,154,464	$201,800
Tier 2 General Service	12.64%	1,878,410	237,431	12.54%	1,799,218	225,622
Total General Service		**2,742,706**	**385,831**		**2,953,682**	**427,422**
Tier 1 Police & Fire	22.26%	966,718	215,191	22.14%	1,245,210	275,689
Tier 2 Police & Fire	20.05%	2,220,759	445,262	19.73%	2,057,116	405,869
Total Police & Fire		**3,187,477**	**660,453**		**3,302,326**	**681,558**
Total		**$5,930,183**	**$1,046,284**		**$6,256,008**	**$1,108,980**
Employer normal cost rate						
General Service			**14.07%**			**14.47%**
Police & Fire			**20.72%**			**20.64%**
Aggregate (Default)			**17.64%**			**17.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,999,119)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.24%)
B. Actual employer payroll	7,073,779
C. Payment to transition liability/(surplus)	(87,715)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.29%)
B. Actual employer payroll	7,154,734
C. Payment to transition liability/(surplus)	(92,295)
4. Supplemental payment to transition liability	0
5. Interest	(130,976)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,950,085)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,950,085)	(1,999,119)
2. Combined valuation payroll	14,230,766	14,020,104
3. Regular amortization factor	10.901	11.494
4. **Total transition liability/(surplus) rate**	**(1.26%)**	**(1.24%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	14,230,766	14,020,104
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Halsey/2284
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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October 2018
City of Halsey/2284

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Halsey -- #2284

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Halsey to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Halsey.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Halsey

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.14%)	(7.14%)	(7.14%)	(7.14%)	(7.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.31%**	**17.31%**	**25.50%**	**13.07%**	**17.70%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**17.37%**	**17.37%**	**25.56%**	**13.07%**	**17.70%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Halsey

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$398,373	$485,166
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(123,889)	(134,449)
Allocated pooled OPSRP UAL	31,468	38,744
Side account	0	0
Net unfunded pension actuarial accrued liability	305,952	389,461
Combined valuation payroll	208,827	225,044
Net pension UAL as a percentage of payroll	147%	173%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.14%)	(6.64%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,393)	($31)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	84,419	10,671	12.54%	136,222	17,082
Total General Service		**84,419**	**10,671**		**136,222**	**17,082**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$84,419**	**$10,671**		**$136,222**	**$17,082**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($134,449)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(12.68%)
B. Actual employer payroll	90,979
C. Payment to transition liability/(surplus)	(11,415)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.15%)
B. Actual employer payroll	104,430
C. Payment to transition liability/(surplus)	(7,466)
4. Supplemental payment to transition liability	0
5. Interest	(8,321)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($123,889)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(123,889)	(134,449)
2. Combined valuation payroll	208,827	225,044
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.14%)**	**(6.64%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	208,827	225,044
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Happy Valley/2296
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Happy Valley/2296

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Happy Valley -- #2296

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Happy Valley to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Happy Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Happy Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.10%	14.10%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.23%**	**24.23%**	**30.96%**	**18.53%**	**23.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.29%**	**24.29%**	**31.02%**	**18.53%**	**23.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Happy Valley

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,275,676	$8,903,287
Allocated pre-SLGRP pooled liability/(surplus)	(605,709)	(624,786)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	653,714	710,992
Side account	0	0
Net unfunded pension actuarial accrued liability	8,323,681	8,989,493
Combined valuation payroll	4,338,104	4,129,782
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($49,707)	($562)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$356,866	$61,274	17.48%	$342,110	$59,801
Tier 2 General Service	12.64%	753,782	95,278	12.54%	1,050,241	131,700
Total General Service		**1,110,648**	**156,552**		**1,392,351**	**191,501**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,110,648**	**$156,552**		**$1,392,351**	**$191,501**
Employer normal cost rate						
General Service			**14.10%**			**13.75%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.10%**			**13.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,338,104	4,129,782
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,338,104	4,129,782
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Harrisburg/2268
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Harrisburg/2268

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Harrisburg -- #2268

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Harrisburg to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Harrisburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Harrisburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.70%	13.70%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.87%)	(0.87%)	(0.87%)	(0.87%)	(0.87%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.96%**	**22.96%**	**30.09%**	**17.66%**	**22.29%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.02%**	**23.02%**	**30.15%**	**17.66%**	**22.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Harrisburg

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,498,404	$1,544,886
Allocated pre-SLGRP pooled liability/(surplus)	(109,670)	(108,412)
Transition liability/(surplus)	(57,001)	(59,879)
Allocated pooled OPSRP UAL	118,362	123,370
Side account	0	0
Net unfunded pension actuarial accrued liability	1,450,095	1,499,965
Combined valuation payroll	785,462	716,594
Net pension UAL as a percentage of payroll	185%	209%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.87%)	(0.93%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($9,000)	($98)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$51,842	$8,901	17.48%	$39,751	$6,948
Tier 2 General Service	12.64%	169,315	21,401	12.54%	162,884	20,426
Total General Service		**221,157**	**30,302**		**202,635**	**27,374**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$221,157**	**$30,302**		**$202,635**	**$27,374**
Employer normal cost rate						
General Service			**13.70%**			**13.51%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.70%**			**13.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($59,879)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	347,393
C. Payment to transition liability/(surplus)	(3,092)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.91%)
B. Actual employer payroll	397,092
C. Payment to transition liability/(surplus)	(3,614)
4. Supplemental payment to transition liability	0
5. Interest	(3,828)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($57,001)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(57,001)	(59,879)
2. Combined valuation payroll	785,462	716,594
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.87%)**	**(0.93%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	785,462	716,594
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Heppner/2193
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Heppner/2193

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Heppner -- #2193

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Heppner to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Heppner.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Heppner

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(21.35%)	(21.35%)	(21.35%)	(21.35%)	(21.35%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**4.61%**	**3.40%**	**9.61%**	**0.00%**	**1.81%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**4.67%**	**3.46%**	**9.67%**	**0.00%**	**1.81%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Heppner

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$519,154	$666,641
Allocated pre-SLGRP pooled liability/(surplus)	(37,998)	(46,781)
Transition liability/(surplus)	(482,868)	(482,234)
Allocated pooled OPSRP UAL	41,009	53,236
Side account	0	0
Net unfunded pension actuarial accrued liability	39,297	190,862
Combined valuation payroll	272,140	309,221
Net pension UAL as a percentage of payroll	14%	62%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(21.35%)	(17.34%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,118)	($42)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($482,234)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(16.96%)
B. Actual employer payroll	131,322
C. Payment to transition liability/(surplus)	(13,960)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(20.48%)
B. Actual employer payroll	131,257
C. Payment to transition liability/(surplus)	(17,837)
4. Supplemental payment to transition liability	0
5. Interest	(32,431)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($482,868)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(482,868)	(482,234)
2. Combined valuation payroll	272,140	309,221
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(21.35%)**	**(17.34%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	272,140	309,221
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Hermiston/2160
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Hermiston/2160

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Hermiston/2160

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hermiston -- #2160

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hermiston to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hermiston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Hermiston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.31%	13.81%	20.43%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.37%)	(1.37%)	(1.37%)	(1.37%)	(1.37%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.75%**	**24.25%**	**30.87%**	**18.84%**	**23.47%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.81%**	**24.31%**	**30.93%**	**18.84%**	**23.47%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hermiston

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$11,127,734	$12,754,538
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(663,693)	(699,390)
Allocated pooled OPSRP UAL	879,004	1,018,543
Side account	0	0
Net unfunded pension actuarial accrued liability	11,343,045	13,073,691
Combined valuation payroll	5,833,150	5,916,181
Net pension UAL as a percentage of payroll	194%	221%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.37%)	(1.31%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($66,837)	($806)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$458,307	$78,691	17.48%	$561,499	$98,150
Tier 2 General Service	12.64%	1,322,786	167,200	12.54%	1,324,451	166,086
Total General Service		**1,781,093**	**245,891**		**1,885,950**	**264,236**
Tier 1 Police & Fire	22.26%	185,431	41,277	22.14%	280,716	62,151
Tier 2 Police & Fire	20.05%	896,452	179,739	19.73%	872,542	172,153
Total Police & Fire		**1,081,883**	**221,016**		**1,153,258**	**234,304**
Total		**$2,862,976**	**$466,907**		**$3,039,208**	**$498,540**
Employer normal cost rate						
General Service			**13.81%**			**14.01%**
Police & Fire			**20.43%**			**20.32%**
Aggregate (Default)			**16.31%**			**16.40%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($699,390)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	2,927,546
C. Payment to transition liability/(surplus)	(39,815)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.33%)
B. Actual employer payroll	3,042,042
C. Payment to transition liability/(surplus)	(40,458)
4. Supplemental payment to transition liability	0
5. Interest	(44,576)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($663,693)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(663,693)	(699,390)
2. Combined valuation payroll	5,833,150	5,916,181
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.37%)**	**(1.31%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	5,833,150	5,916,181
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Hines/2226
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Hines/2226

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hines -- #2226

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hines to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hines.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Hines

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.04%)	(1.04%)	(1.04%)	(1.04%)	(1.04%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.92%**	**23.71%**	**29.92%**	**17.49%**	**22.12%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.98%**	**23.77%**	**29.98%**	**17.49%**	**22.12%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hines

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$759,868	$750,513
Allocated pre-SLGRP pooled liability/(surplus)	(55,616)	(52,667)
Transition liability/(surplus)	(34,470)	(36,551)
Allocated pooled OPSRP UAL	60,024	59,934
Side account	0	0
Net unfunded pension actuarial accrued liability	729,806	721,229
Combined valuation payroll	398,322	348,125
Net pension UAL as a percentage of payroll	183%	207%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.04%)	(1.17%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,564)	($47)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($36,551)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	181,687
C. Payment to transition liability/(surplus)	(1,835)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.32%)
B. Actual employer payroll	194,004
C. Payment to transition liability/(surplus)	(2,561)
4. Supplemental payment to transition liability	0
5. Interest	(2,315)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($34,470)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(34,470)	(36,551)
2. Combined valuation payroll	398,322	348,125
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.04%)**	**(1.17%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	398,322	348,125
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Hood River/2138
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Hood River/2138

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Hood River/2138

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hood River -- #2138

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hood River to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hood River.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Hood River

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.64%	14.05%	20.81%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.97%)	(0.97%)	(0.97%)	(0.97%)	(0.97%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.80%**	**23.21%**	**29.97%**	**17.56%**	**22.19%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.86%**	**23.27%**	**30.03%**	**17.56%**	**22.19%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hood River

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,502,857	$9,177,855
Allocated pre-SLGRP pooled liability/(surplus)	(622,337)	(644,053)
Transition liability/(surplus)	(358,491)	(381,839)
Allocated pooled OPSRP UAL	671,659	732,919
Side account	0	0
Net unfunded pension actuarial accrued liability	8,193,688	8,884,882
Combined valuation payroll	4,457,192	4,257,140
Net pension UAL as a percentage of payroll	184%	209%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.97%)	(1.00%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($51,071)	($580)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$204,654	$35,139	17.48%	$509,220	$89,012
Tier 2 General Service	12.64%	452,480	57,193	12.54%	435,665	54,632
Total General Service		**657,134**	**92,332**		**944,885**	**143,644**
Tier 1 Police & Fire	22.26%	475,791	105,911	22.14%	625,331	138,448
Tier 2 Police & Fire	20.05%	916,571	183,772	19.73%	880,740	173,770
Total Police & Fire		**1,392,362**	**289,683**		**1,506,071**	**312,218**
Total		**$2,049,496**	**$382,015**		**$2,450,956**	**$455,862**
Employer normal cost rate						
General Service			**14.05%**			**15.20%**
Police & Fire			**20.81%**			**20.73%**
Aggregate (Default)			**18.64%**			**18.60%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($381,839)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.15%)
B. Actual employer payroll	2,059,987
C. Payment to transition liability/(surplus)	(23,690)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.04%)
B. Actual employer payroll	2,282,313
C. Payment to transition liability/(surplus)	(23,736)
4. Supplemental payment to transition liability	0
5. Interest	(24,078)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($358,491)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(358,491)	(381,839)
2. Combined valuation payroll	4,457,192	4,257,140
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.97%)**	**(1.00%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,457,192	4,257,140
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Hubbard/2196
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Hubbard/2196

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Hubbard -- #2196

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Hubbard to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Hubbard.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Hubbard

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.08%	16.32%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.24%)	(0.24%)	(0.24%)	(0.24%)	(0.24%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.65%**	**27.89%**	**31.62%**	**19.97%**	**24.60%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.71%**	**27.95%**	**31.68%**	**19.97%**	**24.60%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Hubbard

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$975,828	$1,445,039
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(10,142)	(10,433)
Allocated pooled OPSRP UAL	77,083	115,397
Side account	0	0
Net unfunded pension actuarial accrued liability	1,042,769	1,550,003
Combined valuation payroll	511,528	670,280
Net pension UAL as a percentage of payroll	204%	231%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.24%)	(0.17%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,861)	($91)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$236,567	$40,619	17.48%	$209,516	$36,623
Tier 2 General Service	12.64%	55,014	6,954	12.54%	50,819	6,373
Total General Service		**291,581**	**47,573**		**260,335**	**42,996**
Tier 1 Police & Fire	22.26%	0	0	22.14%	127,497	28,228
Tier 2 Police & Fire	20.05%	75,180	15,074	19.73%	61,425	12,119
Total Police & Fire		**75,180**	**15,074**		**188,922**	**40,347**
Total		**$366,761**	**$62,647**		**$449,257**	**$83,343**
Employer normal cost rate						
General Service			**16.32%**			**16.52%**
Police & Fire			**20.05%**			**21.36%**
Aggregate (Default)			**17.08%**			**18.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($10,433)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.15%)
B. Actual employer payroll	328,282
C. Payment to transition liability/(surplus)	(492)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.17%)
B. Actual employer payroll	282,159
C. Payment to transition liability/(surplus)	(480)
4. Supplemental payment to transition liability	0
5. Interest	(681)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($10,142)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(10,142)	(10,433)
2. Combined valuation payroll	511,528	670,280
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.24%)**	**(0.17%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	511,528	670,280
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Huntington/2191
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Huntington/2191

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Huntington -- #2191

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Huntington to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Huntington.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Huntington

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	37.84%	37.84%	37.84%	37.84%	37.84%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**63.80%**	**62.59%**	**68.80%**	**56.37%**	**61.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**63.86%**	**62.65%**	**68.86%**	**56.37%**	**61.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Huntington

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$25,187	$203,924
Allocated pre-SLGRP pooled liability/(surplus)	(1,843)	(14,310)
Transition liability/(surplus)	310,006	307,475
Allocated pooled OPSRP UAL	1,990	16,285
Side account	0	0
Net unfunded pension actuarial accrued liability	335,340	513,374
Combined valuation payroll	98,562	94,590
Net pension UAL as a percentage of payroll	340%	543%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	37.84%	36.14%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($151)	($13)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$307,475
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	33.54%
B. Actual employer payroll	34,342
C. Payment to transition liability/(surplus)	11,518
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	28.74%
B. Actual employer payroll	23,562
C. Payment to transition liability/(surplus)	6,772
4. Supplemental payment to transition liability	0
5. Interest	20,821
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$310,006**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	310,006	307,475
2. Combined valuation payroll	98,562	94,590
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**37.84%**	**36.14%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	98,562	94,590
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Imbler/2306
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Imbler/2306

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Imbler/2306

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Imbler -- #2306

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Imbler to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Imbler.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Imbler

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.19%	0.19%	0.19%	0.19%	0.19%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.15%**	**24.94%**	**31.15%**	**18.72%**	**23.35%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.21%**	**25.00%**	**31.21%**	**18.72%**	**23.35%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Imbler

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$22,759	$8,587
Allocated pre-SLGRP pooled liability/(surplus)	(1,666)	(603)
Transition liability/(surplus)	193	189
Allocated pooled OPSRP UAL	1,798	686
Side account	0	0
Net unfunded pension actuarial accrued liability	23,084	8,859
Combined valuation payroll	11,930	3,983
Net pension UAL as a percentage of payroll	194%	222%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.19%	0.53%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($137)	($1)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$189
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	5,700
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.16%
B. Actual employer payroll	5,700
C. Payment to transition liability/(surplus)	9
4. Supplemental payment to transition liability	0
5. Interest	13
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$193**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	193	189
2. Combined valuation payroll	11,930	3,983
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.19%**	**0.53%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	11,930	3,983
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Independence/2267
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Independence/2267

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Independence -- #2267

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Independence to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Independence.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Independence

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.02%	15.04%	21.55%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.38%)	(2.38%)	(2.38%)	(2.38%)	(2.38%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.77%**	**22.79%**	**29.30%**	**16.15%**	**20.78%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.83%**	**22.85%**	**29.36%**	**16.15%**	**20.78%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Independence

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,598,744	$6,061,098
Allocated pre-SLGRP pooled liability/(surplus)	(409,780)	(425,336)
Transition liability/(surplus)	(581,444)	(621,748)
Allocated pooled OPSRP UAL	442,257	484,023
Side account	0	0
Net unfunded pension actuarial accrued liability	5,049,777	5,498,037
Combined valuation payroll	2,934,857	2,811,435
Net pension UAL as a percentage of payroll	172%	196%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.38%)	(2.46%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($33,628)	($383)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$384,159	$65,960	17.48%	$502,430	$87,825
Tier 2 General Service	12.64%	339,651	42,932	12.54%	252,727	31,692
Total General Service		**723,810**	**108,892**		**755,157**	**119,517**
Tier 1 Police & Fire	22.26%	214,484	47,744	22.14%	292,567	64,774
Tier 2 Police & Fire	20.05%	101,551	20,361	19.73%	98,192	19,373
Total Police & Fire		**316,035**	**68,105**		**390,759**	**84,147**
Total		**$1,039,845**	**$176,997**		**$1,145,916**	**$203,664**
Employer normal cost rate						
General Service			**15.04%**			**15.83%**
Police & Fire			**21.55%**			**21.53%**
Aggregate (Default)			**17.02%**			**17.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($621,748)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.88%)
B. Actual employer payroll	1,402,468
C. Payment to transition liability/(surplus)	(40,391)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.59%)
B. Actual employer payroll	1,504,442
C. Payment to transition liability/(surplus)	(38,965)
4. Supplemental payment to transition liability	0
5. Interest	(39,052)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($581,444)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(581,444)	(621,748)
2. Combined valuation payroll	2,934,857	2,811,435
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.38%)**	**(2.46%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,934,857	2,811,435
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Irrigon/2266
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Irrigon/2266

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Irrigon/2266

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Irrigon -- #2266

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Irrigon to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Irrigon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Irrigon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.98%	13.98%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.41%)	(1.41%)	(1.41%)	(1.41%)	(1.41%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.70%**	**22.70%**	**29.55%**	**17.12%**	**21.75%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.76%**	**22.76%**	**29.61%**	**17.12%**	**21.75%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Irrigon

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$926,935	$1,010,372
Allocated pre-SLGRP pooled liability/(surplus)	(67,844)	(70,903)
Transition liability/(surplus)	(56,980)	(59,926)
Allocated pooled OPSRP UAL	73,221	80,686
Side account	0	0
Net unfunded pension actuarial accrued liability	875,332	960,229
Combined valuation payroll	485,899	468,660
Net pension UAL as a percentage of payroll	180%	205%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.41%)	(1.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,568)	($64)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$85,399	$14,663	17.48%	$80,720	$14,110
Tier 2 General Service	12.64%	202,800	25,634	12.54%	197,685	24,790
Total General Service		**288,199**	**40,297**		**278,405**	**38,900**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$288,199**	**$40,297**		**$278,405**	**$38,900**
Employer normal cost rate						
General Service			**13.98%**			**13.97%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.98%**			**13.97%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($59,926)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.48%)
B. Actual employer payroll	231,094
C. Payment to transition liability/(surplus)	(3,420)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.43%)
B. Actual employer payroll	234,455
C. Payment to transition liability/(surplus)	(3,353)
4. Supplemental payment to transition liability	0
5. Interest	(3,827)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($56,980)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(56,980)	(59,926)
2. Combined valuation payroll	485,899	468,660
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.41%)**	**(1.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	485,899	468,660
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Jefferson/2211
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Jefferson/2211

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jefferson -- #2211

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jefferson to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jefferson.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Jefferson

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.72%	14.72%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(47.14%)	(47.14%)	(47.14%)	(47.14%)	(47.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Jefferson

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$692,281	$787,101
Allocated pre-SLGRP pooled liability/(surplus)	(50,669)	(55,235)
Transition liability/(surplus)	(1,421,846)	(1,377,779)
Allocated pooled OPSRP UAL	54,685	62,856
Side account	0	0
Net unfunded pension actuarial accrued liability	(725,549)	(583,057)
Combined valuation payroll	362,893	365,096
Net pension UAL as a percentage of payroll	(200%)	(160%)
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(47.14%)	(41.96%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,158)	($50)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$72,797	$12,499	17.48%	$71,132	$12,434
Tier 2 General Service	12.64%	86,011	10,872	12.54%	108,260	13,576
Total General Service		**158,808**	**23,371**		**179,392**	**26,010**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$158,808**	**$23,371**		**$179,392**	**$26,010**
Employer normal cost rate						
General Service			**14.72%**			**14.50%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.72%**			**14.50%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,377,779)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(17.09%)
B. Actual employer payroll	203,652
C. Payment to transition liability/(surplus)	(27,668)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(20.77%)
B. Actual employer payroll	143,094
C. Payment to transition liability/(surplus)	(23,762)
4. Supplemental payment to transition liability	0
5. Interest	(95,497)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,421,846)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,421,846)	(1,377,779)
2. Combined valuation payroll	362,893	365,096
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(47.14%)**	**(41.96%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	362,893	365,096
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of John Day/2229
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of John Day/2229

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of John Day/2229

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of John Day -- #2229

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of John Day to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of John Day.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of John Day

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.27%	12.64%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.12%)	(11.12%)	(11.12%)	(11.12%)	(11.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**16.96%**	**13.33%**	**20.74%**	**9.09%**	**13.72%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**17.02%**	**13.39%**	**20.80%**	**9.09%**	**13.72%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of John Day

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,477,382	$1,384,709
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(715,846)	(743,320)
Allocated pooled OPSRP UAL	116,702	110,579
Side account	0	0
Net unfunded pension actuarial accrued liability	878,238	751,968
Combined valuation payroll	774,442	642,296
Net pension UAL as a percentage of payroll	113%	117%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.12%)	(12.87%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,874)	($87)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	130,274	16,467	12.54%	120,351	15,092
Total General Service		**130,274**	**16,467**		**120,351**	**15,092**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	125,348	25,132	19.73%	121,652	24,002
Total Police & Fire		**125,348**	**25,132**		**121,652**	**24,002**
Total		**$255,622**	**$41,599**		**$242,003**	**$39,094**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**16.27%**			**16.15%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($743,320)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(9.44%)
B. Actual employer payroll	364,686
C. Payment to transition liability/(surplus)	(34,426)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.44%)
B. Actual employer payroll	393,940
C. Payment to transition liability/(surplus)	(41,127)
4. Supplemental payment to transition liability	0
5. Interest	(48,079)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($715,846)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(715,846)	(743,320)
2. Combined valuation payroll	774,442	642,296
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(11.12%)**	**(12.87%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	774,442	642,296
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Jordan Valley/2256
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Jordan Valley/2256

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Jordan Valley/2256

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Jordan Valley -- #2256

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Jordan Valley to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Jordan Valley.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Jordan Valley

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(40.86%)	(40.86%)	(40.86%)	(40.86%)	(40.86%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Jordan Valley

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$121,710	$133,177
Allocated pre-SLGRP pooled liability/(surplus)	(8,908)	(9,346)
Transition liability/(surplus)	(216,696)	(211,334)
Allocated pooled OPSRP UAL	9,614	10,635
Side account	0	0
Net unfunded pension actuarial accrued liability	(94,280)	(76,868)
Combined valuation payroll	63,800	61,774
Net pension UAL as a percentage of payroll	(148%)	(124%)
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(40.86%)	(38.04%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($731)	($8)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	49,237	6,224	12.54%	47,171	5,915
Total General Service		**49,237**	**6,224**		**47,171**	**5,915**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$49,237**	**$6,224**		**$47,171**	**$5,915**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($211,334)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(13.87%)
B. Actual employer payroll	30,618
C. Payment to transition liability/(surplus)	(4,024)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(17.83%)
B. Actual employer payroll	30,618
C. Payment to transition liability/(surplus)	(5,168)
4. Supplemental payment to transition liability	0
5. Interest	(14,554)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($216,696)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(216,696)	(211,334)
2. Combined valuation payroll	63,800	61,774
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(40.86%)**	**(38.04%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	63,800	61,774
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Junction City/2199
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Junction City/2199

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Junction City -- #2199

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Junction City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Junction City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Junction City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.61%	13.50%	20.57%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.72%)	(0.72%)	(0.72%)	(0.72%)	(0.72%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.02%**	**22.91%**	**29.98%**	**17.81%**	**22.44%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.08%**	**22.97%**	**30.04%**	**17.81%**	**22.44%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Junction City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,608,184	$5,261,015
Allocated pre-SLGRP pooled liability/(surplus)	(337,280)	(369,190)
Transition liability/(surplus)	(143,964)	(151,169)
Allocated pooled OPSRP UAL	364,010	420,130
Side account	0	0
Net unfunded pension actuarial accrued liability	4,490,950	5,160,786
Combined valuation payroll	2,415,607	2,440,317
Net pension UAL as a percentage of payroll	186%	211%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.72%)	(0.69%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($27,678)	($332)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$143,704	$24,674	17.48%	$196,994	$34,435
Tier 2 General Service	12.64%	609,797	77,078	12.54%	637,012	79,881
Total General Service		**753,501**	**101,752**		**834,006**	**114,316**
Tier 1 Police & Fire	22.26%	75,257	16,752	22.14%	69,002	15,277
Tier 2 Police & Fire	20.05%	245,663	49,255	19.73%	231,232	45,622
Total Police & Fire		**320,920**	**66,007**		**300,234**	**60,899**
Total		**$1,074,421**	**$167,759**		**$1,134,240**	**$175,215**
Employer normal cost rate						
General Service			**13.50%**			**13.71%**
Police & Fire			**20.57%**			**20.28%**
Aggregate (Default)			**15.61%**			**15.45%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($151,169)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.66%)
B. Actual employer payroll	1,240,193
C. Payment to transition liability/(surplus)	(8,185)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.68%)
B. Actual employer payroll	1,277,625
C. Payment to transition liability/(surplus)	(8,689)
4. Supplemental payment to transition liability	0
5. Interest	(9,669)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($143,964)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(143,964)	(151,169)
2. Combined valuation payroll	2,415,607	2,440,317
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.72%)**	**(0.69%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,415,607	2,440,317
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of King City/2287
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of King City/2287

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of King City -- #2287

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of King City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of King City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of King City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.73%	14.62%	20.73%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.18%)	(4.18%)	(4.18%)	(4.18%)	(4.18%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.36%**	**22.25%**	**28.36%**	**16.03%**	**20.66%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.42%**	**22.31%**	**28.42%**	**16.03%**	**20.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of King City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$781,631	$758,128
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(142,401)	(149,480)
Allocated pooled OPSRP UAL	61,743	60,542
Side account	0	0
Net unfunded pension actuarial accrued liability	700,973	669,190
Combined valuation payroll	409,731	351,657
Net pension UAL as a percentage of payroll	171%	190%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.18%)	(4.73%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,695)	($48)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	63,639	14,166	22.14%	0	0
Tier 2 Police & Fire	20.05%	142,292	28,530	19.73%	272,311	53,727
Total Police & Fire		**205,931**	**42,696**		**272,311**	**53,727**
Total		**$205,931**	**$42,696**		**$272,311**	**$53,727**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.73%**			**19.73%**
Aggregate (Default)			**20.73%**			**19.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($149,480)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	181,100
C. Payment to transition liability/(surplus)	(9,417)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	162,009
C. Payment to transition liability/(surplus)	(7,226)
4. Supplemental payment to transition liability	0
5. Interest	(9,564)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($142,401)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(142,401)	(149,480)
2. Combined valuation payroll	409,731	351,657
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.18%)**	**(4.73%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	409,731	351,657
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Klamath Falls/2148
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Klamath Falls/2148

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Klamath Falls/2148

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Klamath Falls -- #2148

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Klamath Falls to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Klamath Falls.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Klamath Falls

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.47%	15.05%	20.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.12%)	(7.12%)	(7.12%)	(7.12%)	(7.12%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.48%**	**18.06%**	**23.27%**	**11.41%**	**16.04%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.54%**	**18.12%**	**23.33%**	**11.41%**	**16.04%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Klamath Falls

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$18,386,144	$20,810,282
Allocated pre-SLGRP pooled liability/(surplus)	(1,345,709)	(1,460,356)
Transition liability/(surplus)	(5,702,180)	(5,965,252)
Allocated pooled OPSRP UAL	1,452,362	1,661,853
Side account	0	0
Net unfunded pension actuarial accrued liability	12,790,617	15,046,527
Combined valuation payroll	9,638,004	9,652,831
Net pension UAL as a percentage of payroll	133%	156%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(7.12%)	(6.87%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($110,434)	($1,314)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,408,089	$241,769	17.48%	$1,548,364	$270,654
Tier 2 General Service	12.64%	1,239,142	156,628	12.54%	1,291,287	161,927
Total General Service		**2,647,231**	**398,397**		**2,839,651**	**432,581**
Tier 1 Police & Fire	22.26%	220,986	49,191	22.14%	216,972	48,038
Tier 2 Police & Fire	20.05%	2,070,974	415,230	19.73%	2,083,237	411,023
Total Police & Fire		**2,291,960**	**464,421**		**2,300,209**	**459,061**
Total		**$4,939,191**	**$862,818**		**$5,139,860**	**$891,642**
Employer normal cost rate						
General Service			**15.05%**			**15.23%**
Police & Fire			**20.26%**			**19.96%**
Aggregate (Default)			**17.47%**			**17.35%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($5,965,252)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.71%)
B. Actual employer payroll	4,638,050
C. Payment to transition liability/(surplus)	(311,213)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.93%)
B. Actual employer payroll	4,831,763
C. Payment to transition liability/(surplus)	(334,841)
4. Supplemental payment to transition liability	0
5. Interest	(382,982)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,702,180)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(5,702,180)	(5,965,252)
2. Combined valuation payroll	9,638,004	9,652,831
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.12%)**	**(6.87%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	9,638,004	9,652,831
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of La Grande/2263
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of La Grande/2263

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of La Grande -- #2263

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of La Grande to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of La Grande.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of La Grande

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.52%)	(5.52%)	(5.52%)	(5.52%)	(5.52%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.44%**	**19.23%**	**25.44%**	**13.01%**	**17.64%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.50%**	**19.29%**	**25.50%**	**13.01%**	**17.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of La Grande

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,168,585	$5,095,168
Allocated pre-SLGRP pooled liability/(surplus)	(305,105)	(357,552)
Transition liability/(surplus)	(1,002,934)	(1,046,729)
Allocated pooled OPSRP UAL	329,286	406,886
Side account	0	0
Net unfunded pension actuarial accrued liability	3,189,832	4,097,773
Combined valuation payroll	2,185,169	2,363,389
Net pension UAL as a percentage of payroll	146%	173%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(5.52%)	(4.92%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25,038)	($322)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	389,673	86,741	22.14%	471,837	104,465
Tier 2 Police & Fire	20.05%	709,931	142,341	19.73%	742,346	146,465
Total Police & Fire		**1,099,604**	**229,082**		**1,214,183**	**250,930**
Total		**$1,099,604**	**$229,082**		**$1,214,183**	**$250,930**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.67%**
Aggregate (Default)			**20.83%**			**20.67%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,046,729)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.81%)
B. Actual employer payroll	1,136,156
C. Payment to transition liability/(surplus)	(54,649)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.02%)
B. Actual employer payroll	1,125,639
C. Payment to transition liability/(surplus)	(56,507)
4. Supplemental payment to transition liability	0
5. Interest	(67,361)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,002,934)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,002,934)	(1,046,729)
2. Combined valuation payroll	2,185,169	2,363,389
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.52%)**	**(4.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,185,169	2,363,389
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lafayette/2233
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Lafayette/2233

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lafayette -- #2233

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lafayette to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lafayette.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lafayette

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.57%)	(5.57%)	(5.57%)	(5.57%)	(5.57%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.67%**	**20.67%**	**27.07%**	**14.64%**	**19.27%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.73%**	**20.73%**	**27.13%**	**14.64%**	**19.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lafayette

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$790,729	$1,092,978
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(191,920)	(201,716)
Allocated pooled OPSRP UAL	62,461	87,282
Side account	0	0
Net unfunded pension actuarial accrued liability	661,270	978,544
Combined valuation payroll	414,499	506,977
Net pension UAL as a percentage of payroll	160%	193%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.57%)	(4.42%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,749)	($69)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$98,688	$16,945	17.48%	$95,728	$16,733
Tier 2 General Service	12.64%	151,151	19,105	12.54%	219,739	27,555
Total General Service		**249,839**	**36,050**		**315,467**	**44,288**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$249,839**	**$36,050**		**$315,467**	**$44,288**
Employer normal cost rate						
General Service			**14.43%**			**14.04%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.04%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($201,716)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	257,427
C. Payment to transition liability/(surplus)	(11,481)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	261,798
C. Payment to transition liability/(surplus)	(11,205)
4. Supplemental payment to transition liability	0
5. Interest	(12,890)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($191,920)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(191,920)	(201,716)
2. Combined valuation payroll	414,499	506,977
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.57%)**	**(4.42%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	414,499	506,977
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lake Oswego/2120
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Lake Oswego/2120

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lake Oswego -- #2120

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lake Oswego to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lake Oswego.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lake Oswego

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.88%	14.96%	20.97%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.09%)	(1.09%)	(1.09%)	(1.09%)	(1.09%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.60%**	**25.68%**	**31.69%**	**19.12%**	**23.75%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.66%**	**25.74%**	**31.75%**	**19.12%**	**23.75%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lake Oswego

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$50,339,619	$56,507,645
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,381,469)	(2,497,446)
Allocated pooled OPSRP UAL	3,976,436	4,512,547
Side account	0	0
Net unfunded pension actuarial accrued liability	51,934,586	58,522,746
Combined valuation payroll	26,387,992	26,211,021
Net pension UAL as a percentage of payroll	197%	223%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.09%)	(1.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($302,359)	($3,569)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$3,631,236	$623,483	17.48%	$4,024,283	$703,445
Tier 2 General Service	12.64%	3,468,738	438,448	12.54%	3,746,173	469,770
Total General Service		**7,099,974**	**1,061,931**		**7,770,456**	**1,173,215**
Tier 1 Police & Fire	22.26%	2,808,029	625,067	22.14%	2,948,623	652,825
Tier 2 Police & Fire	20.05%	3,907,712	783,496	19.73%	3,600,227	710,325
Total Police & Fire		**6,715,741**	**1,408,563**		**6,548,850**	**1,363,150**
Total		**$13,815,715**	**$2,470,494**		**$14,319,306**	**$2,536,365**
Employer normal cost rate						
General Service			**14.96%**			**15.10%**
Police & Fire			**20.97%**			**20.82%**
Aggregate (Default)			**17.88%**			**17.71%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,497,446)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.02%)
B. Actual employer payroll	13,086,740
C. Payment to transition liability/(surplus)	(133,485)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.06%)
B. Actual employer payroll	13,437,833
C. Payment to transition liability/(surplus)	(142,441)
4. Supplemental payment to transition liability	0
5. Interest	(159,949)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,381,469)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,381,469)	(2,497,446)
2. Combined valuation payroll	26,387,992	26,211,021
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.09%)**	**(1.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	26,387,992	26,211,021
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lakeside/2244
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Lakeside/2244

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Lakeside/2244

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lakeside -- #2244

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lakeside to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lakeside.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lakeside

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(13.98%)	(13.98%)	(13.98%)	(13.98%)	(13.98%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**8.79%**	**8.79%**	**16.98%**	**4.55%**	**9.18%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**8.85%**	**8.85%**	**17.04%**	**4.55%**	**9.18%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lakeside

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$463,027	$629,819
Allocated pre-SLGRP pooled liability/(surplus)	(33,890)	(44,197)
Transition liability/(surplus)	(282,113)	(287,392)
Allocated pooled OPSRP UAL	36,576	50,296
Side account	0	0
Net unfunded pension actuarial accrued liability	183,600	348,526
Combined valuation payroll	242,719	292,141
Net pension UAL as a percentage of payroll	76%	119%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(13.98%)	(10.94%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,781)	($40)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	32,104	4,058	12.54%	56,942	7,141
Total General Service		**32,104**	**4,058**		**56,942**	**7,141**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$32,104**	**$4,058**		**$56,942**	**$7,141**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($287,392)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.37%)
B. Actual employer payroll	161,140
C. Payment to transition liability/(surplus)	(11,876)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(8.22%)
B. Actual employer payroll	150,248
C. Payment to transition liability/(surplus)	(12,351)
4. Supplemental payment to transition liability	0
5. Interest	(18,948)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($282,113)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(282,113)	(287,392)
2. Combined valuation payroll	242,719	292,141
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(13.98%)**	**(10.94%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	242,719	292,141
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lebanon/2140
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Lebanon/2140

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lebanon -- #2140

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lebanon to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lebanon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lebanon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.23%	15.73%	20.30%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.79%)	(5.79%)	(5.79%)	(5.79%)	(5.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.25%**	**21.75%**	**26.32%**	**14.42%**	**19.05%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.31%**	**21.81%**	**26.38%**	**14.42%**	**19.05%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lebanon

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$11,271,339	$12,898,283
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,844,848)	(2,994,161)
Allocated pooled OPSRP UAL	890,348	1,030,022
Side account	0	0
Net unfunded pension actuarial accrued liability	9,316,839	10,934,144
Combined valuation payroll	5,908,428	5,982,857
Net pension UAL as a percentage of payroll	158%	183%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.79%)	(5.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($67,700)	($815)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,157,113	$198,676	17.48%	$1,398,417	$244,443
Tier 2 General Service	12.64%	537,803	67,978	12.54%	495,825	62,176
Total General Service		**1,694,916**	**266,654**		**1,894,242**	**306,619**
Tier 1 Police & Fire	22.26%	94,032	20,932	22.14%	191,278	42,349
Tier 2 Police & Fire	20.05%	733,326	147,032	19.73%	705,680	139,231
Total Police & Fire		**827,358**	**167,964**		**896,958**	**181,580**
Total		**$2,522,274**	**$434,618**		**$2,791,200**	**$488,199**
Employer normal cost rate						
General Service			**15.73%**			**16.19%**
Police & Fire			**20.30%**			**20.24%**
Aggregate (Default)			**17.23%**			**17.49%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,994,161)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.63%)
B. Actual employer payroll	2,980,273
C. Payment to transition liability/(surplus)	(167,789)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.80%)
B. Actual employer payroll	2,975,787
C. Payment to transition liability/(surplus)	(172,596)
4. Supplemental payment to transition liability	0
5. Interest	(191,072)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,844,848)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,844,848)	(2,994,161)
2. Combined valuation payroll	5,908,428	5,982,857
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.79%)**	**(5.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	5,908,428	5,982,857
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lincoln City/2298
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Lincoln City/2298

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Lincoln City/2298

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lincoln City -- #2298

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lincoln City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lincoln City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lincoln City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.57%	14.17%	21.72%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(6.78%)	(6.78%)	(6.78%)	(6.78%)	(6.78%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.60%**	**19.20%**	**26.75%**	**13.43%**	**18.06%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.66%**	**19.26%**	**26.81%**	**13.43%**	**18.06%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lincoln City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$13,336,239	$15,578,042
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,938,388)	(4,114,692)
Allocated pooled OPSRP UAL	1,053,459	1,244,020
Side account	0	0
Net unfunded pension actuarial accrued liability	10,451,310	12,707,370
Combined valuation payroll	6,990,847	7,225,861
Net pension UAL as a percentage of payroll	150%	176%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(6.78%)	(6.33%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($80,102)	($984)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$531,266	$91,218	17.48%	$726,699	$127,027
Tier 2 General Service	12.64%	1,036,778	131,049	12.54%	1,069,234	134,082
Total General Service		**1,568,044**	**222,267**		**1,795,933**	**261,109**
Tier 1 Police & Fire	22.26%	550,846	122,618	22.14%	622,339	137,786
Tier 2 Police & Fire	20.05%	179,969	36,084	19.73%	205,320	40,510
Total Police & Fire		**730,815**	**158,702**		**827,659**	**178,296**
Total		**$2,298,859**	**$380,969**		**$2,623,592**	**$439,405**
Employer normal cost rate						
General Service			**14.17%**			**14.54%**
Police & Fire			**21.72%**			**21.54%**
Aggregate (Default)			**16.57%**			**16.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($4,114,692)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.79%)
B. Actual employer payroll	3,599,395
C. Payment to transition liability/(surplus)	(208,405)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	3,620,225
C. Payment to transition liability/(surplus)	(232,418)
4. Supplemental payment to transition liability	0
5. Interest	(264,519)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,938,388)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(3,938,388)	(4,114,692)
2. Combined valuation payroll	6,990,847	7,225,861
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(6.78%)**	**(6.33%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	6,990,847	7,225,861
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lowell/2293
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Lowell/2293

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lowell -- #2293

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lowell to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lowell.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lowell

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.97%)	(2.97%)	(2.97%)	(2.97%)	(2.97%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.67%**	**23.46%**	**29.67%**	**17.24%**	**21.87%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.73%**	**23.52%**	**29.73%**	**17.24%**	**21.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lowell

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$525,492	$460,475
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(68,076)	(74,195)
Allocated pooled OPSRP UAL	41,510	36,772
Side account	0	0
Net unfunded pension actuarial accrued liability	498,926	423,052
Combined valuation payroll	275,463	213,591
Net pension UAL as a percentage of payroll	181%	198%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.97%)	(3.86%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,156)	($29)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($74,195)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.51%)
B. Actual employer payroll	136,004
C. Payment to transition liability/(surplus)	(4,774)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.25%)
B. Actual employer payroll	139,222
C. Payment to transition liability/(surplus)	(5,917)
4. Supplemental payment to transition liability	0
5. Interest	(4,572)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($68,076)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(68,076)	(74,195)
2. Combined valuation payroll	275,463	213,591
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.97%)**	**(3.86%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	275,463	213,591
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Lyons/2270
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Lyons/2270

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Lyons/2270

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Lyons -- #2270

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Lyons to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Lyons.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Lyons

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.80%)	(2.80%)	(2.80%)	(2.80%)	(2.80%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.18%**	**26.18%**	**29.84%**	**17.41%**	**22.04%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.24%**	**26.24%**	**29.90%**	**17.41%**	**22.04%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Lyons

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$144,525	$149,773
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(17,641)	(18,161)
Allocated pooled OPSRP UAL	11,416	11,960
Side account	0	0
Net unfunded pension actuarial accrued liability	138,300	143,572
Combined valuation payroll	75,760	69,472
Net pension UAL as a percentage of payroll	183%	207%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.80%)	(2.91%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($868)	($9)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$25,200	$4,327	17.48%	$26,870	$4,697
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**25,200**	**4,327**		**26,870**	**4,697**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$25,200**	**$4,327**		**$26,870**	**$4,697**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($18,161)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.76%)
B. Actual employer payroll	37,229
C. Payment to transition liability/(surplus)	(655)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.79%)
B. Actual employer payroll	37,635
C. Payment to transition liability/(surplus)	(1,050)
4. Supplemental payment to transition liability	0
5. Interest	(1,185)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($17,641)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(17,641)	(18,161)
2. Combined valuation payroll	75,760	69,472
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.80%)**	**(2.91%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	75,760	69,472
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Madras/2170
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Madras/2170

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Madras -- #2170

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Madras to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Madras.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Madras

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.80%	16.03%	21.11%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.28%)	(3.28%)	(3.28%)	(3.28%)	(3.28%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.33%**	**24.56%**	**29.64%**	**16.93%**	**21.56%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.39%**	**24.62%**	**29.70%**	**16.93%**	**21.56%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Madras

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,732,485	$3,804,334
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(533,329)	(562,238)
Allocated pooled OPSRP UAL	294,837	303,804
Side account	0	0
Net unfunded pension actuarial accrued liability	3,493,993	3,545,900
Combined valuation payroll	1,956,566	1,764,637
Net pension UAL as a percentage of payroll	179%	201%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.28%)	(3.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($22,419)	($240)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$204,990	$35,197	17.48%	$195,023	$34,090
Tier 2 General Service	12.64%	69,254	8,754	12.54%	168,851	21,174
Total General Service		**274,244**	**43,951**		**363,874**	**55,264**
Tier 1 Police & Fire	22.26%	158,109	35,195	22.14%	150,854	33,399
Tier 2 Police & Fire	20.05%	170,724	34,230	19.73%	150,665	29,726
Total Police & Fire		**328,833**	**69,425**		**301,519**	**63,125**
Total		**$603,077**	**$113,376**		**$665,393**	**$118,389**
Employer normal cost rate						
General Service			**16.03%**			**15.19%**
Police & Fire			**21.11%**			**20.94%**
Aggregate (Default)			**18.80%**			**17.79%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($562,238)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.98%)
B. Actual employer payroll	977,971
C. Payment to transition liability/(surplus)	(29,144)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.42%)
B. Actual employer payroll	1,040,552
C. Payment to transition liability/(surplus)	(35,586)
4. Supplemental payment to transition liability	0
5. Interest	(35,821)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($533,329)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(533,329)	(562,238)
2. Combined valuation payroll	1,956,566	1,764,637
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.28%)**	**(3.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,956,566	1,764,637
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Malin/2247
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Malin/2247

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Malin -- #2247

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Malin to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Malin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Malin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.81%	14.81%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(3.62%)	(3.62%)	(3.62%)	(3.62%)	(3.62%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.32%**	**21.32%**	**27.34%**	**14.91%**	**19.54%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.38%**	**21.38%**	**27.40%**	**14.91%**	**19.54%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Malin

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$210,044	$228,143
Allocated pre-SLGRP pooled liability/(surplus)	(15,373)	(16,010)
Transition liability/(surplus)	(33,144)	(34,619)
Allocated pooled OPSRP UAL	16,592	18,219
Side account	0	0
Net unfunded pension actuarial accrued liability	178,119	195,733
Combined valuation payroll	110,105	105,824
Net pension UAL as a percentage of payroll	162%	185%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(3.62%)	(3.64%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,262)	($14)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$50,110	$8,604	17.48%	$48,714	$8,515
Tier 2 General Service	12.64%	54,399	6,876	12.54%	51,854	6,502
Total General Service		**104,509**	**15,480**		**100,568**	**15,017**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$104,509**	**$15,480**		**$100,568**	**$15,017**
Employer normal cost rate						
General Service			**14.81%**			**14.93%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.81%**			**14.93%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($34,619)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.40%)
B. Actual employer payroll	51,523
C. Payment to transition liability/(surplus)	(1,752)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.56%)
B. Actual employer payroll	54,756
C. Payment to transition liability/(surplus)	(1,949)
4. Supplemental payment to transition liability	0
5. Interest	(2,226)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($33,144)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(33,144)	(34,619)
2. Combined valuation payroll	110,105	105,824
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.62%)**	**(3.64%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	110,105	105,824
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Manzanita/2281
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Manzanita/2281

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Manzanita -- #2281

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Manzanita to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Manzanita.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Manzanita

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.05%	14.62%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.15%)	(1.15%)	(1.15%)	(1.15%)	(1.15%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.03%**	**23.60%**	**29.03%**	**17.38%**	**22.01%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.09%**	**23.66%**	**29.09%**	**17.38%**	**22.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Manzanita

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,155,056	$1,139,144
Allocated pre-SLGRP pooled liability/(surplus)	(84,540)	(79,939)
Transition liability/(surplus)	(57,979)	(59,939)
Allocated pooled OPSRP UAL	91,240	90,969
Side account	0	0
Net unfunded pension actuarial accrued liability	1,103,777	1,090,235
Combined valuation payroll	605,479	528,391
Net pension UAL as a percentage of payroll	182%	206%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.15%)	(1.26%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,938)	($72)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	83,300	16,702	19.73%	111,475	21,994
Total Police & Fire		**83,300**	**16,702**		**111,475**	**21,994**
Total		**$83,300**	**$16,702**		**$111,475**	**$21,994**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**20.05%**			**19.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($59,939)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.03%)
B. Actual employer payroll	248,941
C. Payment to transition liability/(surplus)	(2,564)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	325,719
C. Payment to transition liability/(surplus)	(3,290)
4. Supplemental payment to transition liability	0
5. Interest	(3,894)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($57,979)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(57,979)	(59,939)
2. Combined valuation payroll	605,479	528,391
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.15%)**	**(1.26%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	605,479	528,391
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of McMinnville/2117
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of McMinnville/2117

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of McMinnville/2117

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of McMinnville -- #2117

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of McMinnville to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of McMinnville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of McMinnville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.20%	15.07%	20.91%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.33%**	**25.20%**	**31.04%**	**18.53%**	**23.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.39%**	**25.26%**	**31.10%**	**18.53%**	**23.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of McMinnville

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$25,641,715	$37,630,252
Allocated pre-SLGRP pooled liability/(surplus)	(1,876,756)	(2,640,693)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	2,025,495	3,005,050
Side account	0	0
Net unfunded pension actuarial accrued liability	25,790,454	37,994,609
Combined valuation payroll	13,441,369	17,454,759
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($154,014)	($2,377)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,465,209	$251,576	17.48%	$2,434,791	$425,601
Tier 2 General Service	12.64%	1,263,519	159,709	12.54%	2,337,103	293,073
Total General Service		**2,728,728**	**411,285**		**4,771,894**	**718,674**
Tier 1 Police & Fire	22.26%	1,221,632	271,935	22.14%	1,225,467	271,318
Tier 2 Police & Fire	20.05%	1,918,112	384,581	19.73%	2,024,415	399,417
Total Police & Fire		**3,139,744**	**656,516**		**3,249,882**	**670,735**
Total		**$5,868,472**	**$1,067,801**		**$8,021,776**	**$1,389,409**
Employer normal cost rate						
General Service			**15.07%**			**15.06%**
Police & Fire			**20.91%**			**20.64%**
Aggregate (Default)			**18.20%**			**17.32%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	13,441,369	17,454,759
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	13,441,369	17,454,759
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Medford/2102
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Medford/2102

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Medford -- #2102

October 2018

Secondary Employers

2134 Medford Water Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Medford to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Medford.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Medford

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.06%	14.33%	21.00%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(7.41%)	(7.41%)	(7.41%)	(7.41%)	(7.41%)
Net pension contribution rate	**22.46%**	**18.73%**	**25.40%**	**12.80%**	**17.43%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.52%**	**18.79%**	**25.46%**	**12.80%**	**17.43%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Medford

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$74,117,771	$81,126,722
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	5,854,724	6,478,559
Side account	23,920,468	23,150,344
Net unfunded pension actuarial accrued liability	56,052,027	64,454,937
Combined valuation payroll	38,852,483	37,630,558
Net pension UAL as a percentage of payroll	144%	171%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(7.41%)	(6.84%)
Allocated pooled RHIA UAL	($445,179)	($5,124)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$3,108,044	$533,651	17.48%	$3,340,247	$583,875
Tier 2 General Service	12.64%	5,231,550	661,268	12.54%	5,181,535	649,764
Total General Service		**8,339,594**	**1,194,919**		**8,521,782**	**1,233,639**
Tier 1 Police & Fire	22.26%	4,556,105	1,014,189	22.14%	4,826,976	1,068,692
Tier 2 Police & Fire	20.05%	5,991,956	1,201,387	19.73%	5,775,790	1,139,563
Total Police & Fire		**10,548,061**	**2,215,576**		**10,602,766**	**2,208,255**
Total		**$18,887,655**	**$3,410,495**		**$19,124,548**	**$3,441,894**
Employer normal cost rate						
General Service			**14.33%**			**14.48%**
Police & Fire			**21.00%**			**20.83%**
Aggregate (Default)			**18.06%**			**18.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	38,852,483	37,630,558
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$23,150,344**	**$23,150,344**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(2,653,010)	(2,653,010)
5. Side account earnings during 2017		3,423,633	3,423,633
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$23,920,468**	**$23,920,468**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$23,920,468	$23,150,344
Side Account 2	0	0
Side Account 3	0	0
Total	**$23,920,468**	**$23,150,344**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$23,920,468	$23,150,344
2. Combined valuation payroll	38,852,483	37,630,558
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(7.41%)	(6.84%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Mill City/2207
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Mill City/2207

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mill City -- #2207

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mill City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mill City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Mill City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.21%	0.21%	0.21%	0.21%	0.21%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.98%**	**22.98%**	**31.17%**	**18.74%**	**23.37%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.04%**	**23.04%**	**31.23%**	**18.74%**	**23.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Mill City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$412,323	$510,304
Allocated pre-SLGRP pooled liability/(surplus)	(30,179)	(35,810)
Transition liability/(surplus)	3,816	3,922
Allocated pooled OPSRP UAL	32,570	40,751
Side account	0	0
Net unfunded pension actuarial accrued liability	418,530	519,167
Combined valuation payroll	216,140	236,704
Net pension UAL as a percentage of payroll	194%	219%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.21%	0.18%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,477)	($32)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	67,453	8,526	12.54%	64,886	8,137
Total General Service		**67,453**	**8,526**		**64,886**	**8,137**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$67,453**	**$8,526**		**$64,886**	**$8,137**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$3,922
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.17%
B. Actual employer payroll	102,862
C. Payment to transition liability/(surplus)	175
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.18%
B. Actual employer payroll	103,550
C. Payment to transition liability/(surplus)	187
4. Supplemental payment to transition liability	0
5. Interest	256
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$3,816**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	3,816	3,922
2. Combined valuation payroll	216,140	236,704
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.21%**	**0.18%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	216,140	236,704
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Millersburg/2286
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Millersburg/2286

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Millersburg -- #2286

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Millersburg to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Millersburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Millersburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.42%)	(1.42%)	(1.42%)	(1.42%)	(1.42%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.03%**	**23.03%**	**31.22%**	**18.79%**	**23.42%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.09%**	**23.09%**	**31.28%**	**18.79%**	**23.42%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Millersburg

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$499,230	$338,119
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(30,802)	(32,554)
Allocated pooled OPSRP UAL	39,435	27,001
Side account	0	0
Net unfunded pension actuarial accrued liability	507,863	332,566
Combined valuation payroll	261,696	156,836
Net pension UAL as a percentage of payroll	194%	212%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.42%)	(2.31%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,999)	($21)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	130,092	16,444	12.54%	59,026	7,402
Total General Service		**130,092**	**16,444**		**59,026**	**7,402**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$130,092**	**$16,444**		**$59,026**	**$7,402**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($32,554)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.53%)
B. Actual employer payroll	88,689
C. Payment to transition liability/(surplus)	(1,357)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.56%)
B. Actual employer payroll	157,988
C. Payment to transition liability/(surplus)	(2,464)
4. Supplemental payment to transition liability	0
5. Interest	(2,069)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($30,802)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(30,802)	(32,554)
2. Combined valuation payroll	261,696	156,836
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.42%)**	**(2.31%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	261,696	156,836
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Milton-Freewater/2158
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Milton-Freewater/2158

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Milton-Freewater -- #2158

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Milton-Freewater to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Milton-Freewater.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Milton-Freewater

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.27%	15.18%	20.78%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.77%	1.77%	1.77%	1.77%	1.77%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.17%**	**27.08%**	**32.68%**	**20.30%**	**24.93%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.23%**	**27.14%**	**32.74%**	**20.30%**	**24.93%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Milton-Freewater

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$7,398,868	$9,110,534
Allocated pre-SLGRP pooled liability/(surplus)	(541,534)	(639,329)
Transition liability/(surplus)	571,475	598,485
Allocated pooled OPSRP UAL	584,453	727,542
Side account	0	0
Net unfunded pension actuarial accrued liability	8,013,262	9,797,232
Combined valuation payroll	3,878,482	4,225,913
Net pension UAL as a percentage of payroll	207%	232%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	1.77%	1.57%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($44,440)	($575)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$819,877	$140,773	17.48%	$1,146,230	$200,361
Tier 2 General Service	12.64%	644,415	81,454	12.54%	806,893	101,184
Total General Service		**1,464,292**	**222,227**		**1,953,123**	**301,545**
Tier 1 Police & Fire	22.26%	117,553	26,167	22.14%	117,243	25,958
Tier 2 Police & Fire	20.05%	237,224	47,563	19.73%	220,349	43,475
Total Police & Fire		**354,777**	**73,730**		**337,592**	**69,433**
Total		**$1,819,069**	**$295,957**		**$2,290,715**	**$370,978**
Employer normal cost rate						
General Service			**15.18%**			**15.44%**
Police & Fire			**20.78%**			**20.57%**
Aggregate (Default)			**16.27%**			**16.19%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$598,485
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.60%
B. Actual employer payroll	2,160,581
C. Payment to transition liability/(surplus)	34,569
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	1.56%
B. Actual employer payroll	1,975,861
C. Payment to transition liability/(surplus)	30,824
4. Supplemental payment to transition liability	0
5. Interest	38,383
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$571,475**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	571,475	598,485
2. Combined valuation payroll	3,878,482	4,225,913
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**1.77%**	**1.57%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,878,482	4,225,913
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Milwaukie/2163
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Milwaukie/2163

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Milwaukie -- #2163

October 2018

Secondary Employers

2560 Wichita Water District

CONTENTS

Executive Summary

Milliman has prepared this report for City of Milwaukie to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Milwaukie.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Milwaukie

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.80%	14.41%	21.30%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.78%)	(0.78%)	(0.78%)	(0.78%)	(0.78%)
Side account rate relief [2]	(3.76%)	(3.76%)	(3.76%)	(3.76%)	(3.76%)
Net pension contribution rate	**23.39%**	**20.00%**	**26.89%**	**13.99%**	**18.62%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.45%**	**20.06%**	**26.95%**	**13.99%**	**18.62%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Milwaukie

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$18,952,959	$21,809,480
Allocated pre-SLGRP pooled liability/(surplus)	(1,387,195)	(1,530,474)
Transition liability/(surplus)	(647,223)	(686,501)
Allocated pooled OPSRP UAL	1,497,135	1,741,646
Side account	3,108,833	3,034,927
Net unfunded pension actuarial accrued liability	15,306,843	18,299,224
Combined valuation payroll	9,935,128	10,116,308
Net pension UAL as a percentage of payroll	154%	181%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.78%)	(0.75%)
Side account rate relief	(3.76%)	(3.34%)
Allocated pooled RHIA UAL	($113,839)	($1,377)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$701,544	$120,455	17.48%	$789,391	$137,986
Tier 2 General Service	12.64%	1,089,997	137,776	12.54%	1,212,420	152,037
Total General Service		**1,791,541**	**258,231**		**2,001,811**	**290,023**
Tier 1 Police & Fire	22.26%	979,180	217,965	22.14%	1,206,651	267,153
Tier 2 Police & Fire	20.05%	757,378	151,854	19.73%	856,488	168,985
Total Police & Fire		**1,736,558**	**369,819**		**2,063,139**	**436,138**
Total		**$3,528,099**	**$628,050**		**$4,064,950**	**$726,161**
Employer normal cost rate						
General Service			**14.41%**			**14.49%**
Police & Fire			**21.30%**			**21.14%**
Aggregate (Default)			**17.80%**			**17.86%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($686,501)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.87%)
B. Actual employer payroll	4,881,029
C. Payment to transition liability/(surplus)	(42,465)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.80%)
B. Actual employer payroll	5,035,487
C. Payment to transition liability/(surplus)	(40,283)
4. Supplemental payment to transition liability	0
5. Interest	(43,470)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($647,223)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(647,223)	(686,501)
2. Combined valuation payroll	9,935,128	10,116,308
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.78%)**	**(0.75%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$3,034,927**	**$3,034,927**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(370,707)	(370,707)
5. Side account earnings during 2017		445,113	445,113
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$3,108,833**	**$3,108,833**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$3,108,833	$3,034,927
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,108,833**	**$3,034,927**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$3,108,833	$3,034,927
2. Combined valuation payroll	9,935,128	10,116,308
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(3.76%)	(3.34%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Monmouth/2157
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Monmouth/2157

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Monmouth/2157

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Monmouth -- #2157

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Monmouth to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Monmouth.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Monmouth

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.11%	14.78%	21.62%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(5.44%)	(5.44%)	(5.44%)	(5.44%)	(5.44%)
Net pension contribution rate	**22.48%**	**21.15%**	**27.99%**	**14.77%**	**19.40%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.54%**	**21.21%**	**28.05%**	**14.77%**	**19.40%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Monmouth

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$6,436,879	$7,417,194
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	508,463	592,317
Side account	1,526,568	1,477,962
Net unfunded pension actuarial accrued liability	5,418,774	6,531,549
Combined valuation payroll	3,374,207	3,440,459
Net pension UAL as a percentage of payroll	161%	190%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(5.44%)	(4.78%)
Allocated pooled RHIA UAL	($38,662)	($468)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$537,060	$92,213	17.48%	$707,544	$123,679
Tier 2 General Service	12.64%	599,496	75,776	12.54%	468,631	58,766
Total General Service		**1,136,556**	**167,989**		**1,176,175**	**182,445**
Tier 1 Police & Fire	22.26%	195,574	43,535	22.14%	192,956	42,720
Tier 2 Police & Fire	20.05%	79,470	15,934	19.73%	78,114	15,412
Total Police & Fire		**275,044**	**59,469**		**271,070**	**58,132**
Total		**$1,411,600**	**$227,458**		**$1,447,245**	**$240,577**
Employer normal cost rate						
General Service			**14.78%**			**15.51%**
Police & Fire			**21.62%**			**21.45%**
Aggregate (Default)			**16.11%**			**16.62%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	3,374,207	3,440,459
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$1,477,962**	**$1,477,962**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(169,449)	(169,449)
5. Side account earnings during 2017		218,554	218,554
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$1,526,568**	**$1,526,568**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$1,526,568	$1,477,962
Side Account 2	0	0
Side Account 3	0	0
Total	**$1,526,568**	**$1,477,962**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$1,526,568	$1,477,962
2. Combined valuation payroll	3,374,207	3,440,459
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(5.44%)	(4.78%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Monroe/2209
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Monroe/2209

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Monroe/2209

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Monroe -- #2209

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Monroe to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Monroe.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Monroe

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(13.81%)	(13.81%)	(13.81%)	(13.81%)	(13.81%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**13.83%**	**12.62%**	**18.83%**	**6.40%**	**11.03%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**13.89%**	**12.68%**	**18.89%**	**6.40%**	**11.03%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Monroe

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$262,972	$213,774
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(158,259)	(167,361)
Allocated pooled OPSRP UAL	20,773	17,071
Side account	0	0
Net unfunded pension actuarial accrued liability	125,486	63,484
Combined valuation payroll	137,850	99,159
Net pension UAL as a percentage of payroll	91%	64%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(13.81%)	(18.77%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,580)	($14)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($167,361)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	74,686
C. Payment to transition liability/(surplus)	(9,291)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(17.27%)
B. Actual employer payroll	68,148
C. Payment to transition liability/(surplus)	(10,440)
4. Supplemental payment to transition liability	0
5. Interest	(10,629)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($158,259)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(158,259)	(167,361)
2. Combined valuation payroll	137,850	99,159
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(13.81%)**	**(18.77%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	137,850	99,159
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Moro/2301
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Moro/2301

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Moro -- #2301

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Moro to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Moro.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Moro

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(12.59%)	(12.59%)	(12.59%)	(12.59%)	(12.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**15.05%**	**13.84%**	**20.05%**	**7.62%**	**12.25%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.11%**	**13.90%**	**20.11%**	**7.62%**	**12.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Moro

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$151,160	$178,015
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(82,935)	(84,358)
Allocated pooled OPSRP UAL	11,940	14,216
Side account	0	0
Net unfunded pension actuarial accrued liability	80,165	107,873
Combined valuation payroll	79,238	82,572
Net pension UAL as a percentage of payroll	101%	131%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(12.59%)	(11.36%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($908)	($11)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($84,358)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(9.33%)
B. Actual employer payroll	43,143
C. Payment to transition liability/(surplus)	(4,025)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.38%)
B. Actual employer payroll	31,642
C. Payment to transition liability/(surplus)	(2,968)
4. Supplemental payment to transition liability	0
5. Interest	(5,570)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($82,935)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(82,935)	(84,358)
2. Combined valuation payroll	79,238	82,572
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(12.59%)**	**(11.36%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	79,238	82,572
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Mt. Vernon/2302
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Mt. Vernon/2302

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Mt. Vernon/2302

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Mt Vernon -- #2302

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Mt. Vernon to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Mt. Vernon.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Mt. Vernon

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.94%)	(8.94%)	(8.94%)	(8.94%)	(8.94%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.04%**	**20.04%**	**23.70%**	**11.27%**	**15.90%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.10%**	**20.10%**	**23.76%**	**11.27%**	**15.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Mt. Vernon

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$228,741	$328,810
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(89,093)	(92,195)
Allocated pooled OPSRP UAL	18,069	26,258
Side account	0	0
Net unfunded pension actuarial accrued liability	157,717	262,873
Combined valuation payroll	119,906	152,518
Net pension UAL as a percentage of payroll	132%	172%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.94%)	(6.72%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,374)	($21)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$69,632	$11,956	17.48%	$68,325	$11,943
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**69,632**	**11,956**		**68,325**	**11,943**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$69,632**	**$11,956**		**$68,325**	**$11,943**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($92,195)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.53%)
B. Actual employer payroll	66,693
C. Payment to transition liability/(surplus)	(5,022)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.89%)
B. Actual employer payroll	58,987
C. Payment to transition liability/(surplus)	(4,064)
4. Supplemental payment to transition liability	0
5. Interest	(5,984)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($89,093)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(89,093)	(92,195)
2. Combined valuation payroll	119,906	152,518
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(8.94%)**	**(6.72%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	119,906	152,518
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Myrtle Creek/2197
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Myrtle Creek/2197

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Myrtle Creek -- #2197

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Myrtle Creek to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Myrtle Creek.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Myrtle Creek

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.54%	14.40%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.57%)	(4.57%)	(4.57%)	(4.57%)	(4.57%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.10%**	**19.96%**	**27.82%**	**13.96%**	**18.59%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.16%**	**20.02%**	**27.88%**	**13.96%**	**18.59%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Myrtle Creek

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,867,849	$1,888,884
Allocated pre-SLGRP pooled liability/(surplus)	(136,711)	(132,552)
Transition liability/(surplus)	(371,938)	(386,023)
Allocated pooled OPSRP UAL	147,545	150,841
Side account	0	0
Net unfunded pension actuarial accrued liability	1,506,745	1,521,150
Combined valuation payroll	979,125	876,157
Net pension UAL as a percentage of payroll	154%	174%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(4.57%)	(4.90%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11,219)	($119)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$111,945	$19,221	17.48%	$107,198	$18,738
Tier 2 General Service	12.64%	175,586	22,194	12.54%	164,266	20,599
Total General Service		**287,531**	**41,415**		**271,464**	**39,337**
Tier 1 Police & Fire	22.26%	4,968	1,106	22.14%	4,968	1,100
Tier 2 Police & Fire	20.05%	0	0	19.73%	6,225	1,228
Total Police & Fire		**4,968**	**1,106**		**11,193**	**2,328**
Total		**$292,499**	**$42,521**		**$282,657**	**$41,665**
Employer normal cost rate						
General Service			**14.40%**			**14.49%**
Police & Fire			**22.26%**			**20.80%**
Aggregate (Default)			**14.54%**			**14.74%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($386,023)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.00%)
B. Actual employer payroll	473,093
C. Payment to transition liability/(surplus)	(18,924)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.15%)
B. Actual employer payroll	485,339
C. Payment to transition liability/(surplus)	(20,142)
4. Supplemental payment to transition liability	0
5. Interest	(24,981)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($371,938)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(371,938)	(386,023)
2. Combined valuation payroll	979,125	876,157
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.57%)**	**(4.90%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	979,125	876,157
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Myrtle Point/2183
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Myrtle Point/2183

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Myrtle Point -- #2183

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Myrtle Point to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Myrtle Point.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Myrtle Point

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.03%	13.89%	21.14%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(8.62%)	(8.62%)	(8.62%)	(8.62%)	(8.62%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.54%**	**15.40%**	**22.65%**	**9.91%**	**14.54%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.60%**	**15.46%**	**22.71%**	**9.91%**	**14.54%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Myrtle Point

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,081,922	$2,613,115
Allocated pre-SLGRP pooled liability/(surplus)	(152,379)	(183,375)
Transition liability/(surplus)	(782,222)	(811,903)
Allocated pooled OPSRP UAL	164,456	208,676
Side account	0	0
Net unfunded pension actuarial accrued liability	1,311,777	1,826,513
Combined valuation payroll	1,091,342	1,212,091
Net pension UAL as a percentage of payroll	120%	151%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(8.62%)	(7.45%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($12,505)	($165)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$60,792	$10,438	17.48%	$173,278	$30,289
Tier 2 General Service	12.64%	158,740	20,065	12.54%	182,718	22,913
Total General Service		**219,532**	**30,503**		**355,996**	**53,202**
Tier 1 Police & Fire	22.26%	82,844	18,441	22.14%	80,583	17,841
Tier 2 Police & Fire	20.05%	84,838	17,010	19.73%	81,999	16,178
Total Police & Fire		**167,682**	**35,451**		**162,582**	**34,019**
Total		**$387,214**	**$65,954**		**$518,578**	**$87,221**
Employer normal cost rate						
General Service			**13.89%**			**14.94%**
Police & Fire			**21.14%**			**20.92%**
Aggregate (Default)			**17.03%**			**16.82%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($811,903)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.98%)
B. Actual employer payroll	634,210
C. Payment to transition liability/(surplus)	(44,268)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.83%)
B. Actual employer payroll	555,658
C. Payment to transition liability/(surplus)	(37,950)
4. Supplemental payment to transition liability	0
5. Interest	(52,537)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($782,222)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(782,222)	(811,903)
2. Combined valuation payroll	1,091,342	1,212,091
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(8.62%)**	**(7.45%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,091,342	1,212,091
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Newberg/2777
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Newberg/2777

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Newberg -- #2777

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Newberg to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Newberg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Newberg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.23%	14.47%	20.92%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.91%)	(0.91%)	(0.91%)	(0.91%)	(0.91%)
Side account rate relief [2]	(5.52%)	(5.52%)	(5.52%)	(5.52%)	(5.52%)
Net pension contribution rate	**21.93%**	**18.17%**	**24.62%**	**12.10%**	**16.73%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.99%**	**18.23%**	**24.68%**	**12.10%**	**16.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Newberg

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$9,428,071	$9,767,543
Allocated pre-SLGRP pooled liability/(surplus)	(690,055)	(685,435)
Transition liability/(surplus)	(372,225)	(375,917)
Allocated pooled OPSRP UAL	744,744	780,009
Side account	2,268,115	2,112,022
Net unfunded pension actuarial accrued liability	6,842,420	7,374,178
Combined valuation payroll	4,942,188	4,530,666
Net pension UAL as a percentage of payroll	138%	163%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.91%)	(0.92%)
Side account rate relief	(5.52%)	(5.18%)
Allocated pooled RHIA UAL	($56,629)	($617)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$481,837	$82,731	17.48%	$396,422	$69,295
Tier 2 General Service	12.64%	709,746	89,712	12.54%	672,074	84,278
Total General Service		**1,191,583**	**172,443**		**1,068,496**	**153,573**
Tier 1 Police & Fire	22.26%	654,098	145,602	22.14%	620,854	137,457
Tier 2 Police & Fire	20.05%	1,004,740	201,450	19.73%	914,365	180,404
Total Police & Fire		**1,658,838**	**347,052**		**1,535,219**	**317,861**
Total		**$2,850,421**	**$519,495**		**$2,603,715**	**$471,434**
Employer normal cost rate						
General Service			**14.47%**			**14.37%**
Police & Fire			**20.92%**			**20.70%**
Aggregate (Default)			**18.23%**			**18.11%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($375,917)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.58%)
B. Actual employer payroll	2,319,637
C. Payment to transition liability/(surplus)	(13,454)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.61%)
B. Actual employer payroll	2,497,952
C. Payment to transition liability/(surplus)	(15,238)
4. Supplemental payment to transition liability	0
5. Interest	(25,000)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($372,225)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(372,225)	(375,917)
2. Combined valuation payroll	4,942,188	4,530,666
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.91%)**	**(0.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$2,112,022**	**$2,112,022**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(161,517)	(161,517)
5. Side account earnings during 2017		318,111	318,111
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$2,268,115**	**$2,268,115**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$2,268,115	$2,112,022
Side Account 2	0	0
Side Account 3	0	0
Total	**$2,268,115**	**$2,112,022**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$2,268,115	$2,112,022
2. Combined valuation payroll	4,942,188	4,530,666
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(5.52%)	(5.18%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Newport/2276
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Newport/2276

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Newport/2276

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Newport -- #2276

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Newport to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Newport.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Newport

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.67%	14.62%	20.67%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.37%)	(5.37%)	(5.37%)	(5.37%)	(5.37%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.43%**	**19.38%**	**25.43%**	**13.16%**	**17.79%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.49%**	**19.44%**	**25.49%**	**13.16%**	**17.79%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Newport

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,061,656	$5,241,970
Allocated pre-SLGRP pooled liability/(surplus)	(370,470)	(367,854)
Transition liability/(surplus)	(1,185,413)	(1,270,391)
Allocated pooled OPSRP UAL	399,831	418,609
Side account	0	0
Net unfunded pension actuarial accrued liability	3,905,604	4,022,334
Combined valuation payroll	2,653,316	2,431,483
Net pension UAL as a percentage of payroll	147%	165%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(5.37%)	(5.81%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($30,402)	($331)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	307,243	68,392	22.14%	361,645	80,068
Tier 2 Police & Fire	20.05%	781,221	156,635	19.73%	775,957	153,096
Total Police & Fire		**1,088,464**	**225,027**		**1,137,602**	**233,164**
Total		**$1,088,464**	**$225,027**		**$1,137,602**	**$233,164**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.67%**			**20.50%**
Aggregate (Default)			**20.67%**			**20.50%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,270,391)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.09%)
B. Actual employer payroll	1,242,702
C. Payment to transition liability/(surplus)	(75,681)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.54%)
B. Actual employer payroll	1,359,553
C. Payment to transition liability/(surplus)	(88,914)
4. Supplemental payment to transition liability	0
5. Interest	(79,617)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,185,413)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,185,413)	(1,270,391)
2. Combined valuation payroll	2,653,316	2,431,483
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.37%)**	**(5.81%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,653,316	2,431,483
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of North Bend/2292
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of North Bend/2292

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Bend -- #2292

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Bend to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Bend.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of North Bend

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.13%	14.48%	20.89%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.58%)	(2.58%)	(2.58%)	(2.58%)	(2.58%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.68%**	**22.03%**	**28.44%**	**15.95%**	**20.58%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.74%**	**22.09%**	**28.50%**	**15.95%**	**20.58%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Bend

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$7,902,190	$8,306,811
Allocated pre-SLGRP pooled liability/(surplus)	(578,373)	(582,928)
Transition liability/(surplus)	(887,897)	(941,131)
Allocated pooled OPSRP UAL	624,211	663,359
Side account	0	0
Net unfunded pension actuarial accrued liability	7,060,131	7,446,111
Combined valuation payroll	4,142,323	3,853,107
Net pension UAL as a percentage of payroll	170%	193%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.58%)	(2.72%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($47,464)	($525)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$294,199	$50,514	17.48%	$368,456	$64,406
Tier 2 General Service	12.64%	428,144	54,117	12.54%	405,932	50,904
Total General Service		**722,343**	**104,631**		**774,388**	**115,310**
Tier 1 Police & Fire	22.26%	362,414	80,673	22.14%	355,142	78,628
Tier 2 Police & Fire	20.05%	591,567	118,609	19.73%	567,718	112,011
Total Police & Fire		**953,981**	**199,282**		**922,860**	**190,639**
Total		**$1,676,324**	**$303,913**		**$1,697,248**	**$305,949**
Employer normal cost rate						
General Service			**14.48%**			**14.89%**
Police & Fire			**20.89%**			**20.66%**
Aggregate (Default)			**18.13%**			**18.03%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($941,131)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.72%)
B. Actual employer payroll	1,914,673
C. Payment to transition liability/(surplus)	(52,079)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.86%)
B. Actual employer payroll	2,125,505
C. Payment to transition liability/(surplus)	(60,790)
4. Supplemental payment to transition liability	0
5. Interest	(59,635)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($887,897)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(887,897)	(941,131)
2. Combined valuation payroll	4,142,323	3,853,107
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.58%)**	**(2.72%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,142,323	3,853,107
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of North Plains/2192
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of North Plains/2192

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of North Plains/2192

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Plains -- #2192

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Plains to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Plains.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of North Plains

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.34%)	(2.34%)	(2.34%)	(2.34%)	(2.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.43%**	**20.43%**	**28.62%**	**16.19%**	**20.82%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.49%**	**20.49%**	**28.68%**	**16.19%**	**20.82%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Plains

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,436,204	$1,376,954
Allocated pre-SLGRP pooled liability/(surplus)	(105,118)	(96,627)
Transition liability/(surplus)	(146,597)	(152,009)
Allocated pooled OPSRP UAL	113,449	109,960
Side account	0	0
Net unfunded pension actuarial accrued liability	1,297,938	1,238,278
Combined valuation payroll	752,857	638,699
Net pension UAL as a percentage of payroll	172%	194%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.34%)	(2.65%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,626)	($87)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	138,628	17,523	12.54%	149,015	18,686
Total General Service		**138,628**	**17,523**		**149,015**	**18,686**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$138,628**	**$17,523**		**$149,015**	**$18,686**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($152,009)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.10%)
B. Actual employer payroll	289,534
C. Payment to transition liability/(surplus)	(6,080)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.43%)
B. Actual employer payroll	377,651
C. Payment to transition liability/(surplus)	(9,178)
4. Supplemental payment to transition liability	0
5. Interest	(9,846)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($146,597)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(146,597)	(152,009)
2. Combined valuation payroll	752,857	638,699
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.34%)**	**(2.65%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	752,857	638,699
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of North Powder/2308
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of North Powder/2308

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of North Powder -- #2308

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of North Powder to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of North Powder.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of North Powder

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.84%)	(2.84%)	(2.84%)	(2.84%)	(2.84%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.61%**	**21.61%**	**29.80%**	**17.37%**	**22.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.67%**	**21.67%**	**29.86%**	**17.37%**	**22.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of North Powder

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$145,771	$141,136
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(18,061)	(19,275)
Allocated pooled OPSRP UAL	11,515	11,271
Side account	0	0
Net unfunded pension actuarial accrued liability	139,225	133,132
Combined valuation payroll	76,413	65,466
Net pension UAL as a percentage of payroll	182%	203%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.84%)	(3.27%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($876)	($9)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	34,605	4,374	12.54%	33,621	4,216
Total General Service		**34,605**	**4,374**		**33,621**	**4,216**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$34,605**	**$4,374**		**$33,621**	**$4,216**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($19,275)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.37%)
B. Actual employer payroll	37,448
C. Payment to transition liability/(surplus)	(1,262)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.28%)
B. Actual employer payroll	35,498
C. Payment to transition liability/(surplus)	(1,165)
4. Supplemental payment to transition liability	0
5. Interest	(1,213)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($18,061)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(18,061)	(19,275)
2. Combined valuation payroll	76,413	65,466
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.84%)**	**(3.27%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	76,413	65,466
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Nyssa/2166
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Nyssa/2166

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Nyssa -- #2166

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Nyssa to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Nyssa.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Nyssa

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.75%	16.80%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.79%)	(0.79%)	(0.79%)	(0.79%)	(0.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.09%**	**26.14%**	**29.39%**	**17.74%**	**22.37%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.15%**	**26.20%**	**29.45%**	**17.74%**	**22.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Nyssa

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$1,044,120	$1,574,525
Allocated pre-SLGRP pooled liability/(surplus)	(76,421)	(110,492)
Transition liability/(surplus)	(35,833)	(36,507)
Allocated pooled OPSRP UAL	82,477	125,737
Side account	0	0
Net unfunded pension actuarial accrued liability	1,014,343	1,553,263
Combined valuation payroll	547,327	730,342
Net pension UAL as a percentage of payroll	185%	213%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.79%)	(0.56%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,271)	($99)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$125,120	$21,483	17.48%	$120,458	$21,056
Tier 2 General Service	12.64%	11,135	1,407	12.54%	74,149	9,298
Total General Service		**136,255**	**22,890**		**194,607**	**30,354**
Tier 1 Police & Fire	22.26%	0	0	22.14%	80,564	17,837
Tier 2 Police & Fire	20.05%	56,070	11,242	19.73%	55,736	10,997
Total Police & Fire		**56,070**	**11,242**		**136,300**	**28,834**
Total		**$192,325**	**$34,132**		**$330,907**	**$59,188**
Employer normal cost rate						
General Service			**16.80%**			**15.60%**
Police & Fire			**20.05%**			**21.15%**
Aggregate (Default)			**17.75%**			**17.89%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($36,507)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.50%)
B. Actual employer payroll	311,995
C. Payment to transition liability/(surplus)	(1,560)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.50%)
B. Actual employer payroll	304,273
C. Payment to transition liability/(surplus)	(1,521)
4. Supplemental payment to transition liability	0
5. Interest	(2,407)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($35,833)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(35,833)	(36,507)
2. Combined valuation payroll	547,327	730,342
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.79%)**	**(0.56%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	547,327	730,342
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Oakland/2143
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Oakland/2143

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oakland -- #2143

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oakland to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oakland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Oakland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	8.66%	8.66%	8.66%	8.66%	8.66%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**33.11%**	**33.11%**	**41.30%**	**28.87%**	**33.50%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**33.17%**	**33.17%**	**41.36%**	**28.87%**	**33.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oakland

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$282,632	$366,483
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	106,703	110,111
Allocated pooled OPSRP UAL	22,326	29,266
Side account	0	0
Net unfunded pension actuarial accrued liability	411,661	505,860
Combined valuation payroll	148,155	169,993
Net pension UAL as a percentage of payroll	278%	298%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	8.66%	7.20%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,698)	($23)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	45,693	5,776	12.54%	44,392	5,567
Total General Service		**45,693**	**5,776**		**44,392**	**5,567**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$45,693**	**$5,776**		**$44,392**	**$5,567**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$110,111
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	7.09%
B. Actual employer payroll	80,558
C. Payment to transition liability/(surplus)	5,712
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	6.11%
B. Actual employer payroll	79,612
C. Payment to transition liability/(surplus)	4,863
4. Supplemental payment to transition liability	0
5. Interest	7,167
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$106,703**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	106,703	110,111
2. Combined valuation payroll	148,155	169,993
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**8.66%**	**7.20%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	148,155	169,993
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Oakridge/2168
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Oakridge/2168

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oakridge -- #2168

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oakridge to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oakridge.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Oakridge

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	19.36%	14.77%	22.21%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.02%	5.02%	5.02%	5.02%	5.02%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**34.51%**	**29.92%**	**37.36%**	**23.55%**	**28.18%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**34.57%**	**29.98%**	**37.42%**	**23.55%**	**28.18%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oakridge

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,447,301	$2,842,756
Allocated pre-SLGRP pooled liability/(surplus)	(179,122)	(199,490)
Transition liability/(surplus)	534,874	565,594
Allocated pooled OPSRP UAL	193,318	227,015
Side account	0	0
Net unfunded pension actuarial accrued liability	2,996,371	3,435,875
Combined valuation payroll	1,282,873	1,318,610
Net pension UAL as a percentage of payroll	234%	261%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	5.02%	4.77%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14,699)	($180)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$58,081	$9,973	17.48%	$46,725	$8,168
Tier 2 General Service	12.64%	65,385	8,265	12.54%	96,686	12,124
Total General Service		**123,466**	**18,238**		**143,411**	**20,292**
Tier 1 Police & Fire	22.26%	194,430	43,280	22.14%	195,884	43,369
Tier 2 Police & Fire	20.05%	4,791	961	19.73%	76,201	15,034
Total Police & Fire		**199,221**	**44,241**		**272,085**	**58,403**
Total		**$322,687**	**$62,479**		**$415,496**	**$78,695**
Employer normal cost rate						
General Service			**14.77%**			**14.15%**
Police & Fire			**22.21%**			**21.46%**
Aggregate (Default)			**19.36%**			**18.94%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$565,594
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	5.77%
B. Actual employer payroll	563,482
C. Payment to transition liability/(surplus)	32,513
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	5.50%
B. Actual employer payroll	620,566
C. Payment to transition liability/(surplus)	34,131
4. Supplemental payment to transition liability	0
5. Interest	35,924
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$534,874**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	534,874	565,594
2. Combined valuation payroll	1,282,873	1,318,610
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**5.02%**	**4.77%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,282,873	1,318,610
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Oregon City/2119
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Oregon City/2119

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Oregon City -- #2119

October 2018

Secondary Employers

2727	Park Place Water District
2769	South Fork Water Board

CONTENTS

Executive Summary

Milliman has prepared this report for City of Oregon City to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Oregon City.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Oregon City

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.99%	13.82%	20.41%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(5.10%)	(5.10%)	(5.10%)	(5.10%)	(5.10%)
Net pension contribution rate	**22.70%**	**20.53%**	**27.12%**	**15.11%**	**19.74%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.76%**	**20.59%**	**27.18%**	**15.11%**	**19.74%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Oregon City

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$26,891,215	$28,165,584
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	2,124,196	2,249,227
Side account	5,975,280	5,846,594
Net unfunded pension actuarial accrued liability	23,040,131	24,568,217
Combined valuation payroll	14,096,356	13,064,581
Net pension UAL as a percentage of payroll	163%	188%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	(5.10%)	(4.98%)
Allocated pooled RHIA UAL	($161,519)	($1,779)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,136,214	$195,088	17.48%	$1,274,774	$222,830
Tier 2 General Service	12.64%	3,223,955	407,508	12.54%	3,228,386	404,840
Total General Service		**4,360,169**	**602,596**		**4,503,160**	**627,670**
Tier 1 Police & Fire	22.26%	350,499	78,021	22.14%	319,515	70,741
Tier 2 Police & Fire	20.05%	1,790,687	359,033	19.73%	1,593,261	314,350
Total Police & Fire		**2,141,186**	**437,054**		**1,912,776**	**385,091**
Total		**$6,501,355**	**$1,039,650**		**$6,415,936**	**$1,012,761**
Employer normal cost rate						
General Service			**13.82%**			**13.94%**
Police & Fire			**20.41%**			**20.13%**
Aggregate (Default)			**15.99%**			**15.79%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	14,096,356	13,064,581
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$5,846,594**	**$5,846,594**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(728,954)	(728,954)
5. Side account earnings during 2017		858,140	858,140
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$5,975,280**	**$5,975,280**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$5,975,280	$5,846,594
Side Account 2	0	0
Side Account 3	0	0
Total	**$5,975,280**	**$5,846,594**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$5,975,280	$5,846,594
2. Combined valuation payroll	14,096,356	13,064,581
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(5.10%)	(4.98%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Pendleton/2154
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Pendleton/2154

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Pendleton/2154

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Pendleton -- #2154

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Pendleton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Pendleton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Pendleton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.16%	15.60%	20.56%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(4.28%)	(4.28%)	(4.28%)	(4.28%)	(4.28%)
Net pension contribution rate	**24.01%**	**21.45%**	**26.41%**	**14.25%**	**18.88%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.07%**	**21.51%**	**26.47%**	**14.25%**	**18.88%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Pendleton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$17,629,474	$18,460,956
Allocated pre-SLGRP pooled liability/(surplus)	(1,290,328)	(1,295,493)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,392,591	1,474,242
Side account	3,288,461	3,181,522
Net unfunded pension actuarial accrued liability	14,443,276	15,458,183
Combined valuation payroll	9,241,358	8,563,098
Net pension UAL as a percentage of payroll	156%	181%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	(4.28%)	(4.13%)
Allocated pooled RHIA UAL	($105,889)	($1,166)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$1,223,318	$210,044	17.48%	$1,196,820	$209,204
Tier 2 General Service	12.64%	651,887	82,399	12.54%	652,033	81,765
Total General Service		**1,875,205**	**292,443**		**1,848,853**	**290,969**
Tier 1 Police & Fire	22.26%	460,303	102,463	22.14%	509,947	112,902
Tier 2 Police & Fire	20.05%	1,537,085	308,186	19.73%	1,496,086	295,178
Total Police & Fire		**1,997,388**	**410,649**		**2,006,033**	**408,080**
Total		**$3,872,593**	**$703,092**		**$3,854,886**	**$699,049**
Employer normal cost rate						
General Service			**15.60%**			**15.74%**
Police & Fire			**20.56%**			**20.34%**
Aggregate (Default)			**18.16%**			**18.13%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	9,241,358	8,563,098
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$3,181,522**	**$3,181,522**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(363,243)	(363,243)
5. Side account earnings during 2017		470,682	470,682
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$3,288,461**	**$3,288,461**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$3,288,461	$3,181,522
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,288,461**	**$3,181,522**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$3,288,461	$3,181,522
2. Combined valuation payroll	9,241,358	8,563,098
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(4.28%)	(4.13%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Philomath/2187
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Philomath/2187

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Philomath -- #2187

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Philomath to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Philomath.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Philomath

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.98%	14.90%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.68%)	(2.68%)	(2.68%)	(2.68%)	(2.68%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.43%**	**22.35%**	**29.71%**	**15.85%**	**20.48%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.49%**	**22.41%**	**29.77%**	**15.85%**	**20.48%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Philomath

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,338,842	$3,694,240
Allocated pre-SLGRP pooled liability/(surplus)	(244,375)	(259,242)
Transition liability/(surplus)	(389,468)	(415,080)
Allocated pooled OPSRP UAL	263,742	295,012
Side account	0	0
Net unfunded pension actuarial accrued liability	2,968,741	3,314,930
Combined valuation payroll	1,750,219	1,713,570
Net pension UAL as a percentage of payroll	170%	193%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.68%)	(2.69%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($20,054)	($233)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$206,765	$35,502	17.48%	$202,904	$35,468
Tier 2 General Service	12.64%	208,445	26,347	12.54%	200,713	25,169
Total General Service		**415,210**	**61,849**		**403,617**	**60,637**
Tier 1 Police & Fire	22.26%	163,400	36,373	22.14%	165,862	36,722
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**163,400**	**36,373**		**165,862**	**36,722**
Total		**$578,610**	**$98,222**		**$569,479**	**$97,359**
Employer normal cost rate						
General Service			**14.90%**			**15.02%**
Police & Fire			**22.26%**			**22.14%**
Aggregate (Default)			**16.98%**			**17.10%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($415,080)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.35%)
B. Actual employer payroll	803,801
C. Payment to transition liability/(surplus)	(26,927)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.96%)
B. Actual employer payroll	839,298
C. Payment to transition liability/(surplus)	(24,843)
4. Supplemental payment to transition liability	0
5. Interest	(26,158)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($389,468)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(389,468)	(415,080)
2. Combined valuation payroll	1,750,219	1,713,570
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.68%)**	**(2.69%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,750,219	1,713,570
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Phoenix/2249
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Phoenix/2249

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Phoenix/2249

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Phoenix -- #2249

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Phoenix to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Phoenix.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Phoenix

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.11%	12.64%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.41%)	(11.41%)	(11.41%)	(11.41%)	(11.41%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**15.51%**	**13.04%**	**20.45%**	**8.80%**	**13.43%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.57%**	**13.10%**	**20.51%**	**8.80%**	**13.43%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Phoenix

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,185,472	$2,029,296
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,086,469)	(1,129,883)
Allocated pooled OPSRP UAL	172,635	162,054
Side account	0	0
Net unfunded pension actuarial accrued liability	1,271,638	1,061,467
Combined valuation payroll	1,145,623	941,287
Net pension UAL as a percentage of payroll	111%	113%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.41%)	(13.35%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13,127)	($128)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	159,096	20,110	12.54%	149,290	18,721
Total General Service		**159,096**	**20,110**		**149,290**	**18,721**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	79,544	15,949	19.73%	77,828	15,355
Total Police & Fire		**79,544**	**15,949**		**77,828**	**15,355**
Total		**$238,640**	**$36,059**		**$227,118**	**$34,076**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**15.11%**			**15.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,129,883)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(11.40%)
B. Actual employer payroll	514,461
C. Payment to transition liability/(surplus)	(58,649)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.52%)
B. Actual employer payroll	548,825
C. Payment to transition liability/(surplus)	(57,737)
4. Supplemental payment to transition liability	0
5. Interest	(72,972)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,086,469)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,086,469)	(1,129,883)
2. Combined valuation payroll	1,145,623	941,287
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(11.41%)**	**(13.35%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,145,623	941,287
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Pilot Rock/2161
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Pilot Rock/2161

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Pilot Rock -- #2161

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Pilot Rock to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Pilot Rock.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Pilot Rock

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.22%	15.22%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.28%	5.28%	5.28%	5.28%	5.28%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**30.63%**	**30.63%**	**36.24%**	**23.81%**	**28.44%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.69%**	**30.69%**	**36.30%**	**23.81%**	**28.44%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Pilot Rock

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$565,375	$582,392
Allocated pre-SLGRP pooled liability/(surplus)	(41,381)	(40,869)
Transition liability/(surplus)	130,161	132,650
Allocated pooled OPSRP UAL	44,660	46,508
Side account	0	0
Net unfunded pension actuarial accrued liability	698,815	720,681
Combined valuation payroll	296,369	270,142
Net pension UAL as a percentage of payroll	236%	267%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	5.28%	5.46%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,396)	($37)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$60,214	$10,339	17.48%	$59,036	$10,319
Tier 2 General Service	12.64%	45,554	5,758	12.54%	44,379	5,565
Total General Service		**105,768**	**16,097**		**103,415**	**15,884**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$105,768**	**$16,097**		**$103,415**	**$15,884**
Employer normal cost rate						
General Service			**15.22%**			**15.36%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.22%**			**15.36%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$132,650
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	3.81%
B. Actual employer payroll	131,581
C. Payment to transition liability/(surplus)	5,013
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	4.24%
B. Actual employer payroll	146,647
C. Payment to transition liability/(surplus)	6,218
4. Supplemental payment to transition liability	0
5. Interest	8,742
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$130,161**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	130,161	132,650
2. Combined valuation payroll	296,369	270,142
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**5.28%**	**5.46%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	296,369	270,142
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Port Orford/2184
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Port Orford/2184

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Port Orford/2184

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Port Orford -- #2184

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Port Orford to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Port Orford.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Port Orford

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.73%	12.64%	21.71%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.82%)	(0.82%)	(0.82%)	(0.82%)	(0.82%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.04%**	**21.95%**	**31.02%**	**17.71%**	**22.34%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.10%**	**22.01%**	**31.08%**	**17.71%**	**22.34%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Port Orford

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,034,912	$1,021,817
Allocated pre-SLGRP pooled liability/(surplus)	(75,747)	(71,706)
Transition liability/(surplus)	(37,147)	(39,234)
Allocated pooled OPSRP UAL	81,750	81,600
Side account	0	0
Net unfunded pension actuarial accrued liability	1,003,768	992,477
Combined valuation payroll	542,500	473,969
Net pension UAL as a percentage of payroll	185%	209%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.82%)	(0.92%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,216)	($65)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$58,487	$10,224
Tier 2 General Service	12.64%	97,295	12,298	12.54%	91,745	11,505
Total General Service		**97,295**	**12,298**		**150,232**	**21,729**
Tier 1 Police & Fire	22.26%	60,066	13,371	22.14%	54,617	12,092
Tier 2 Police & Fire	20.05%	19,736	3,957	19.73%	0	0
Total Police & Fire		**79,802**	**17,328**		**54,617**	**12,092**
Total		**$177,097**	**$29,626**		**$204,849**	**$33,821**
Employer normal cost rate						
General Service			**12.64%**			**14.46%**
Police & Fire			**21.71%**			**22.14%**
Aggregate (Default)			**16.73%**			**16.51%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($39,234)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.94%)
B. Actual employer payroll	241,510
C. Payment to transition liability/(surplus)	(2,270)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.85%)
B. Actual employer payroll	271,875
C. Payment to transition liability/(surplus)	(2,312)
4. Supplemental payment to transition liability	0
5. Interest	(2,495)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($37,147)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(37,147)	(39,234)
2. Combined valuation payroll	542,500	473,969
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.82%)**	**(0.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	542,500	473,969
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Portland/2121
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Portland/2121

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Portland -- #2121

October 2018

Secondary Employers

2156	Portland Development Commission
2173	Portland Boxing Commission
2509	Multnomah Rural Fire Protection District #2
2520	Powell Valley Road Water District
2525	Metropolitan Planning Commission
2554	Hazelwood Water District
2566	Capitol Highway Water District
2680	Gilbert Water District
2683	City of Portland Water Bureau

CONTENTS

Executive Summary

Milliman has prepared this report for City of Portland to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Portland.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Portland

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.67%	14.57%	20.49%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	11.50%	11.50%	11.50%	11.50%	11.50%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.14%)	(4.14%)	(4.14%)	(4.14%)	(4.14%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.80%**	**21.70%**	**27.62%**	**15.53%**	**20.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.86%**	**21.76%**	**27.68%**	**15.53%**	**20.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Portland

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$733,326,698	$782,259,899
Allocated pre-SLGRP pooled liability/(surplus)	(53,673,280)	(54,894,875)
Transition liability/(surplus)	(132,348,550)	(141,028,613)
Allocated pooled OPSRP UAL	57,927,073	62,469,147
Side account	0	0
Net unfunded pension actuarial accrued liability	605,231,941	648,805,558
Combined valuation payroll	384,409,335	362,850,562
Net pension UAL as a percentage of payroll	157%	179%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(4.14%)	(4.32%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,404,636)	($49,405)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$55,941,484	$9,605,153	17.48%	$67,427,006	$11,786,241
Tier 2 General Service	12.64%	75,541,412	9,548,434	12.54%	77,136,169	9,672,876
Total General Service		**131,482,896**	**19,153,587**		**144,563,175**	**21,459,117**
Tier 1 Police & Fire	22.26%	460,957	102,609	22.14%	357,004	79,041
Tier 2 Police & Fire	20.05%	1,862,049	373,341	19.73%	1,984,650	391,571
Total Police & Fire		**2,323,006**	**475,950**		**2,341,654**	**470,612**
Total		**$133,805,902**	**$19,629,537**		**$146,904,829**	**$21,929,729**
Employer normal cost rate						
General Service			**14.57%**			**14.84%**
Police & Fire			**20.49%**			**20.10%**
Aggregate (Default)			**14.67%**			**14.93%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($141,028,613)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.69%)
B. Actual employer payroll	187,263,904
C. Payment to transition liability/(surplus)	(8,782,677)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.45%)
B. Actual employer payroll	197,448,725
C. Payment to transition liability/(surplus)	(8,786,468)
4. Supplemental payment to transition liability	0
5. Interest	(8,889,082)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($132,348,550)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(132,348,550)	(141,028,613)
2. Combined valuation payroll	384,409,335	362,850,562
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.14%)**	**(4.32%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	384,409,335	362,850,562
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Redmond/2122
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Redmond/2122

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Redmond -- #2122

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Redmond to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Redmond.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Redmond

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.41%	14.44%	20.41%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.79%)	(4.79%)	(4.79%)	(4.79%)	(4.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.43%**	**21.46%**	**27.43%**	**15.42%**	**20.05%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.49%**	**21.52%**	**27.49%**	**15.42%**	**20.05%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Redmond

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$22,449,476	$25,145,086
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(4,682,158)	(5,022,340)
Allocated pooled OPSRP UAL	1,773,333	2,008,018
Side account	0	0
Net unfunded pension actuarial accrued liability	19,540,651	22,130,764
Combined valuation payroll	11,767,999	11,663,526
Net pension UAL as a percentage of payroll	166%	190%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.79%)	(4.79%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($134,840)	($1,588)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,072,123	$184,084	17.48%	$1,104,211	$193,016
Tier 2 General Service	12.64%	1,630,232	206,061	12.54%	2,110,768	264,690
Total General Service		**2,702,355**	**390,145**		**3,214,979**	**457,706**
Tier 1 Police & Fire	22.26%	219,884	48,946	22.14%	320,381	70,932
Tier 2 Police & Fire	20.05%	1,113,740	223,305	19.73%	1,116,999	220,384
Total Police & Fire		**1,333,624**	**272,251**		**1,437,380**	**291,316**
Total		**$4,035,979**	**$662,396**		**$4,652,359**	**$749,022**
Employer normal cost rate						
General Service			**14.44%**			**14.24%**
Police & Fire			**20.41%**			**20.27%**
Aggregate (Default)			**16.41%**			**16.10%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($5,022,340)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	5,839,148
C. Payment to transition liability/(surplus)	(341,590)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.37%)
B. Actual employer payroll	5,829,882
C. Payment to transition liability/(surplus)	(313,065)
4. Supplemental payment to transition liability	0
5. Interest	(314,473)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($4,682,158)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(4,682,158)	(5,022,340)
2. Combined valuation payroll	11,767,999	11,663,526
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.79%)**	**(4.79%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	11,767,999	11,663,526
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Reedsport/2139
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Reedsport/2139

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Reedsport -- #2139

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Reedsport to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Reedsport.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Reedsport

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.04%	13.84%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(11.79%)	(11.79%)	(11.79%)	(11.79%)	(11.79%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.38%**	**12.18%**	**18.39%**	**6.74%**	**11.37%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.44%**	**12.24%**	**18.45%**	**6.74%**	**11.37%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Reedsport

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,048,680	$3,242,723
Allocated pre-SLGRP pooled liability/(surplus)	(223,137)	(227,557)
Transition liability/(surplus)	(1,565,718)	(1,639,074)
Allocated pooled OPSRP UAL	240,822	258,955
Side account	0	0
Net unfunded pension actuarial accrued liability	1,500,647	1,635,047
Combined valuation payroll	1,598,116	1,504,134
Net pension UAL as a percentage of payroll	94%	109%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(11.79%)	(12.12%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18,312)	($205)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$95,060	$16,322	17.48%	$103,672	$18,122
Tier 2 General Service	12.64%	262,661	33,200	12.54%	245,788	30,822
Total General Service		**357,721**	**49,522**		**349,460**	**48,944**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	196,086	39,315	19.73%	192,152	37,912
Total Police & Fire		**196,086**	**39,315**		**192,152**	**37,912**
Total		**$553,807**	**$88,837**		**$541,612**	**$86,856**
Employer normal cost rate						
General Service			**13.84%**			**14.01%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**16.04%**			**16.04%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,639,074)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(11.77%)
B. Actual employer payroll	725,278
C. Payment to transition liability/(surplus)	(81,477)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(12.24%)
B. Actual employer payroll	792,802
C. Payment to transition liability/(surplus)	(97,039)
4. Supplemental payment to transition liability	0
5. Interest	(105,160)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,565,718)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,565,718)	(1,639,074)
2. Combined valuation payroll	1,598,116	1,504,134
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(11.79%)**	**(12.12%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,598,116	1,504,134
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Riddle/2260
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Riddle/2260

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Riddle -- #2260

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Riddle to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Riddle.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Riddle

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.92%	15.92%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.54%)	(3.54%)	(3.54%)	(3.54%)	(3.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.19%**	**24.19%**	**29.10%**	**16.67%**	**21.30%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.25%**	**24.25%**	**29.16%**	**16.67%**	**21.30%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Riddle

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$640,521	$701,720
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(98,787)	(105,095)
Allocated pooled OPSRP UAL	50,596	56,037
Side account	0	0
Net unfunded pension actuarial accrued liability	592,330	652,662
Combined valuation payroll	335,761	325,492
Net pension UAL as a percentage of payroll	176%	201%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.54%)	(3.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,847)	($44)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$125,480	$21,545	17.48%	$121,679	$21,269
Tier 2 General Service	12.64%	47,673	6,026	12.54%	47,771	5,990
Total General Service		**173,153**	**27,571**		**169,450**	**27,259**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$173,153**	**$27,571**		**$169,450**	**$27,259**
Employer normal cost rate						
General Service			**15.92%**			**16.09%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.92%**			**16.09%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($105,095)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.26%)
B. Actual employer payroll	155,070
C. Payment to transition liability/(surplus)	(6,606)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.79%)
B. Actual employer payroll	167,196
C. Payment to transition liability/(surplus)	(6,337)
4. Supplemental payment to transition liability	0
5. Interest	(6,635)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($98,787)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(98,787)	(105,095)
2. Combined valuation payroll	335,761	325,492
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.54%)**	**(3.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	335,761	325,492
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Rockaway Beach/2203
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Rockaway Beach/2203

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Rockaway Beach/2203

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Rockaway Beach -- #2203

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Rockaway Beach to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Rockaway Beach.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Rockaway Beach

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.83%	13.54%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.29%)	(3.29%)	(3.29%)	(3.29%)	(3.29%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.35%**	**22.06%**	**28.57%**	**16.92%**	**21.55%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.41%**	**22.12%**	**28.63%**	**16.92%**	**21.55%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Rockaway Beach

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,866,132	$2,176,943
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(267,671)	(291,142)
Allocated pooled OPSRP UAL	147,410	173,845
Side account	0	0
Net unfunded pension actuarial accrued liability	1,745,871	2,059,646
Combined valuation payroll	978,225	1,009,773
Net pension UAL as a percentage of payroll	178%	204%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.29%)	(3.21%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11,209)	($137)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$52,541	$9,021	17.48%	$48,242	$8,433
Tier 2 General Service	12.64%	213,256	26,956	12.54%	202,084	25,341
Total General Service		**265,797**	**35,977**		**250,326**	**33,774**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	65,897	13,212	19.73%	40,012	7,894
Total Police & Fire		**65,897**	**13,212**		**40,012**	**7,894**
Total		**$331,694**	**$49,189**		**$290,338**	**$41,668**
Employer normal cost rate						
General Service			**13.54%**			**13.49%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**14.83%**			**14.35%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($291,142)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.27%)
B. Actual employer payroll	512,239
C. Payment to transition liability/(surplus)	(21,873)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.77%)
B. Actual employer payroll	519,285
C. Payment to transition liability/(surplus)	(19,576)
4. Supplemental payment to transition liability	0
5. Interest	(17,978)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($267,671)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(267,671)	(291,142)
2. Combined valuation payroll	978,225	1,009,773
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.29%)**	**(3.21%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	978,225	1,009,773
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Rogue River/2251
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Rogue River/2251

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

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ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Rogue River -- #2251

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Rogue River to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Rogue River.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Rogue River

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.16%	16.42%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	3.83%	3.83%	3.83%	3.83%	3.83%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**31.12%**	**30.38%**	**34.01%**	**22.36%**	**26.99%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.18%**	**30.44%**	**34.07%**	**22.36%**	**26.99%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Rogue River

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,331,530	$1,449,939
Allocated pre-SLGRP pooled liability/(surplus)	(97,457)	(101,749)
Transition liability/(surplus)	222,035	234,462
Allocated pooled OPSRP UAL	105,180	115,788
Side account	0	0
Net unfunded pension actuarial accrued liability	1,561,288	1,698,440
Combined valuation payroll	697,987	672,553
Net pension UAL as a percentage of payroll	224%	253%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	3.83%	3.88%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,998)	($92)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$212,455	$36,479	17.48%	$132,296	$23,125
Tier 2 General Service	12.64%	42,077	5,319	12.54%	95,311	11,952
Total General Service		**254,532**	**41,798**		**227,607**	**35,077**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	65,014	13,035	19.73%	62,102	12,253
Total Police & Fire		**65,014**	**13,035**		**62,102**	**12,253**
Total		**$319,546**	**$54,833**		**$289,709**	**$47,330**
Employer normal cost rate						
General Service			**16.42%**			**15.41%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**17.16%**			**16.34%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$234,462
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	3.54%
B. Actual employer payroll	353,276
C. Payment to transition liability/(surplus)	12,506
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	3.95%
B. Actual employer payroll	375,557
C. Payment to transition liability/(surplus)	14,834
4. Supplemental payment to transition liability	0
5. Interest	14,913
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$222,035**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	222,035	234,462
2. Combined valuation payroll	697,987	672,553
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**3.83%**	**3.88%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	697,987	672,553
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Roseburg/2100
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Roseburg/2100

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Roseburg -- #2100

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Roseburg to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Roseburg.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Roseburg

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.92%	14.46%	20.79%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.05%**	**24.59%**	**30.92%**	**18.53%**	**23.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.11%**	**24.65%**	**30.98%**	**18.53%**	**23.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Roseburg

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$20,592,351	$23,471,005
Allocated pre-SLGRP pooled liability/(surplus)	(1,507,185)	(1,647,071)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	1,626,635	1,874,331
Side account	0	0
Net unfunded pension actuarial accrued liability	20,711,801	23,698,265
Combined valuation payroll	10,794,496	10,887,005
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($123,685)	($1,482)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$790,575	$135,742	17.48%	$1,011,658	$176,838
Tier 2 General Service	12.64%	1,176,752	148,741	12.54%	1,237,582	155,193
Total General Service		**1,967,327**	**284,483**		**2,249,240**	**332,031**
Tier 1 Police & Fire	22.26%	798,048	177,645	22.14%	1,372,199	303,805
Tier 2 Police & Fire	20.05%	1,569,405	314,666	19.73%	1,483,969	292,787
Total Police & Fire		**2,367,453**	**492,311**		**2,856,168**	**596,592**
Total		**$4,334,780**	**$776,794**		**$5,105,408**	**$928,623**
Employer normal cost rate						
General Service			**14.46%**			**14.76%**
Police & Fire			**20.79%**			**20.89%**
Aggregate (Default)			**17.92%**			**18.19%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	10,794,496	10,887,005
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	10,794,496	10,887,005
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Sandy/2172
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Sandy/2172

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sandy -- #2172

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sandy to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sandy.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Sandy

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.87%	14.14%	20.49%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.66%)	(0.66%)	(0.66%)	(0.66%)	(0.66%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.34%**	**23.61%**	**29.96%**	**17.87%**	**22.50%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.40%**	**23.67%**	**30.02%**	**17.87%**	**22.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sandy

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,575,019	$9,351,530
Allocated pre-SLGRP pooled liability/(surplus)	(627,618)	(656,241)
Transition liability/(surplus)	(246,084)	(264,370)
Allocated pooled OPSRP UAL	677,359	746,788
Side account	0	0
Net unfunded pension actuarial accrued liability	8,378,676	9,177,707
Combined valuation payroll	4,495,019	4,337,699
Net pension UAL as a percentage of payroll	186%	212%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.66%)	(0.68%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($51,505)	($591)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$245,672	$42,182	17.48%	$452,634	$79,120
Tier 2 General Service	12.64%	496,112	62,709	12.54%	433,162	54,319
Total General Service		**741,784**	**104,891**		**885,796**	**133,439**
Tier 1 Police & Fire	22.26%	111,262	24,767	22.14%	86,037	19,049
Tier 2 Police & Fire	20.05%	449,313	90,087	19.73%	356,351	70,308
Total Police & Fire		**560,575**	**114,854**		**442,388**	**89,357**
Total		**$1,302,359**	**$219,745**		**$1,328,184**	**$222,796**
Employer normal cost rate						
General Service			**14.14%**			**15.06%**
Police & Fire			**20.49%**			**20.20%**
Aggregate (Default)			**16.87%**			**16.77%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($264,370)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.85%)
B. Actual employer payroll	2,159,558
C. Payment to transition liability/(surplus)	(18,356)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.74%)
B. Actual employer payroll	2,224,128
C. Payment to transition liability/(surplus)	(16,458)
4. Supplemental payment to transition liability	0
5. Interest	(16,528)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($246,084)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(246,084)	(264,370)
2. Combined valuation payroll	4,495,019	4,337,699
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.66%)**	**(0.68%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,495,019	4,337,699
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Scappoose/2176
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Scappoose/2176

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Scappoose -- #2176

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Scappoose to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Scappoose.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Scappoose

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.75%	14.51%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.34%)	(1.34%)	(1.34%)	(1.34%)	(1.34%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.22%**	**24.98%**	**30.52%**	**18.87%**	**23.50%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.28%**	**25.04%**	**30.58%**	**18.87%**	**23.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Scappoose

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,190,122	$4,850,547
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(244,496)	(262,558)
Allocated pooled OPSRP UAL	330,987	387,351
Side account	0	0
Net unfunded pension actuarial accrued liability	4,276,613	4,975,340
Combined valuation payroll	2,196,459	2,249,922
Net pension UAL as a percentage of payroll	195%	221%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.34%)	(1.30%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25,167)	($306)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$296,006	$50,824	17.48%	$495,757	$86,658
Tier 2 General Service	12.64%	420,406	53,139	12.54%	410,054	51,421
Total General Service		**716,412**	**103,963**		**905,811**	**138,079**
Tier 1 Police & Fire	22.26%	0	0	22.14%	76,882	17,022
Tier 2 Police & Fire	20.05%	207,172	41,538	19.73%	202,297	39,913
Total Police & Fire		**207,172**	**41,538**		**279,179**	**56,935**
Total		**$923,584**	**$145,501**		**$1,184,990**	**$195,014**
Employer normal cost rate						
General Service			**14.51%**			**15.24%**
Police & Fire			**20.05%**			**20.39%**
Aggregate (Default)			**15.75%**			**16.46%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($262,558)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.63%)
B. Actual employer payroll	1,107,093
C. Payment to transition liability/(surplus)	(18,046)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.43%)
B. Actual employer payroll	1,149,449
C. Payment to transition liability/(surplus)	(16,437)
4. Supplemental payment to transition liability	0
5. Interest	(16,421)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($244,496)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(244,496)	(262,558)
2. Combined valuation payroll	2,196,459	2,249,922
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.34%)**	**(1.30%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,196,459	2,249,922
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Shady Cove/2254
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Shady Cove/2254

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Shady Cove -- #2254

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Shady Cove to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Shady Cove.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Shady Cove

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(17.70%)	(17.70%)	(17.70%)	(17.70%)	(17.70%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**9.94%**	**8.73%**	**14.94%**	**2.51%**	**7.14%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**10.00%**	**8.79%**	**15.00%**	**2.51%**	**7.14%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Shady Cove

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$418,696	$403,709
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(322,919)	(330,210)
Allocated pooled OPSRP UAL	33,074	32,239
Side account	0	0
Net unfunded pension actuarial accrued liability	128,851	105,738
Combined valuation payroll	219,480	187,260
Net pension UAL as a percentage of payroll	59%	56%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(17.70%)	(19.61%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,515)	($25)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($330,210)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(18.77%)
B. Actual employer payroll	97,522
C. Payment to transition liability/(surplus)	(12,132)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(16.36%)
B. Actual employer payroll	109,976
C. Payment to transition liability/(surplus)	(16,848)
4. Supplemental payment to transition liability	0
5. Interest	(21,689)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($322,919)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(322,919)	(330,210)
2. Combined valuation payroll	219,480	187,260
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(17.70%)**	**(19.61%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	219,480	187,260
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Sherwood/2142
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Sherwood/2142

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sherwood -- #2142

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sherwood to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sherwood.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Sherwood

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.67%	14.13%	20.80%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.25%)	(0.25%)	(0.25%)	(0.25%)	(0.25%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.55%**	**24.01%**	**30.68%**	**18.28%**	**22.91%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.61%**	**24.07%**	**30.74%**	**18.28%**	**22.91%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sherwood

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$13,610,769	$15,229,073
Allocated pre-SLGRP pooled liability/(surplus)	(996,193)	(1,068,696)
Transition liability/(surplus)	(149,294)	(157,798)
Allocated pooled OPSRP UAL	1,075,144	1,216,152
Side account	0	0
Net unfunded pension actuarial accrued liability	13,540,426	15,218,731
Combined valuation payroll	7,134,755	7,063,992
Net pension UAL as a percentage of payroll	190%	215%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.25%)	(0.25%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($81,751)	($962)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$530,928	$91,160	17.48%	$449,056	$78,495
Tier 2 General Service	12.64%	1,088,060	137,531	12.54%	1,355,104	169,930
Total General Service		**1,618,988**	**228,691**		**1,804,160**	**248,425**
Tier 1 Police & Fire	22.26%	335,846	74,759	22.14%	435,771	96,480
Tier 2 Police & Fire	20.05%	659,879	132,306	19.73%	710,334	140,149
Total Police & Fire		**995,725**	**207,065**		**1,146,105**	**236,629**
Total		**$2,614,713**	**$435,756**		**$2,950,265**	**$485,054**
Employer normal cost rate						
General Service			**14.13%**			**13.77%**
Police & Fire			**20.80%**			**20.65%**
Aggregate (Default)			**16.67%**			**16.44%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($157,798)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.27%)
B. Actual employer payroll	3,522,640
C. Payment to transition liability/(surplus)	(9,511)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.25%)
B. Actual employer payroll	3,607,926
C. Payment to transition liability/(surplus)	(9,020)
4. Supplemental payment to transition liability	0
5. Interest	(10,027)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($149,294)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(149,294)	(157,798)
2. Combined valuation payroll	7,134,755	7,063,992
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.25%)**	**(0.25%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	7,134,755	7,063,992
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Silverton/2273
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Silverton/2273

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Silverton/2273

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Silverton -- #2273

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Silverton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Silverton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Silverton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.16%	15.57%	20.98%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.09%)	(0.09%)	(0.09%)	(0.09%)	(0.09%)
Side account rate relief [2]	(2.42%)	(2.42%)	(2.42%)	(2.42%)	(2.42%)
Net pension contribution rate	**24.78%**	**23.19%**	**28.60%**	**16.02%**	**20.65%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.84%**	**23.25%**	**28.66%**	**16.02%**	**20.65%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Silverton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,750,103	$6,249,888
Allocated pre-SLGRP pooled liability/(surplus)	(420,859)	(438,584)
Transition liability/(surplus)	(23,616)	(24,783)
Allocated pooled OPSRP UAL	454,213	499,099
Side account	606,861	589,348
Net unfunded pension actuarial accrued liability	5,152,980	5,696,272
Combined valuation payroll	3,014,200	2,899,005
Net pension UAL as a percentage of payroll	171%	196%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.09%)	(0.10%)
Side account rate relief	(2.42%)	(2.26%)
Allocated pooled RHIA UAL	($34,537)	($395)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$660,838	$113,466	17.48%	$535,055	$93,528
Tier 2 General Service	12.64%	360,120	45,519	12.54%	350,395	43,940
Total General Service		**1,020,958**	**158,985**		**885,450**	**137,468**
Tier 1 Police & Fire	22.26%	179,683	39,997	22.14%	171,766	38,029
Tier 2 Police & Fire	20.05%	245,002	49,123	19.73%	307,179	60,606
Total Police & Fire		**424,685**	**89,120**		**478,945**	**98,635**
Total		**$1,445,643**	**$248,105**		**$1,364,395**	**$236,103**
Employer normal cost rate						
General Service			**15.57%**			**15.53%**
Police & Fire			**20.98%**			**20.59%**
Aggregate (Default)			**17.16%**			**17.30%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($24,783)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,501,679
C. Payment to transition liability/(surplus)	(1,352)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.09%)
B. Actual employer payroll	1,557,808
C. Payment to transition liability/(surplus)	(1,401)
4. Supplemental payment to transition liability	0
5. Interest	(1,586)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($23,616)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(23,616)	(24,783)
2. Combined valuation payroll	3,014,200	2,899,005
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.09%)**	**(0.10%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$589,348**	**$589,348**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(69,102)	(69,102)
5. Side account earnings during 2017		87,116	87,116
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$606,861**	**$606,861**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$606,861	$589,348
Side Account 2	0	0
Side Account 3	0	0
Total	**$606,861**	**$589,348**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$606,861	$589,348
2. Combined valuation payroll	3,014,200	2,899,005
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(2.42%)	(2.26%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Sisters/2221
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Sisters/2221

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sisters -- #2221

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sisters to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sisters.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Sisters

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(4.03%)	(4.03%)	(4.03%)	(4.03%)	(4.03%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.74%**	**18.74%**	**26.93%**	**14.50%**	**19.13%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.80%**	**18.80%**	**26.99%**	**14.50%**	**19.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sisters

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,778,246	$1,694,131
Allocated pre-SLGRP pooled liability/(surplus)	(130,152)	(118,885)
Transition liability/(surplus)	(312,100)	(327,783)
Allocated pooled OPSRP UAL	140,468	135,289
Side account	0	0
Net unfunded pension actuarial accrued liability	1,476,462	1,382,752
Combined valuation payroll	932,155	785,821
Net pension UAL as a percentage of payroll	158%	176%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(4.03%)	(4.64%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($10,681)	($107)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$46,786	$8,178
Tier 2 General Service	12.64%	142,187	17,972	12.54%	144,833	18,162
Total General Service		**142,187**	**17,972**		**191,619**	**26,340**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$142,187**	**$17,972**		**$191,619**	**$26,340**
Employer normal cost rate						
General Service			**12.64%**			**13.75%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**13.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($327,783)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.13%)
B. Actual employer payroll	423,268
C. Payment to transition liability/(surplus)	(17,481)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.05%)
B. Actual employer payroll	473,168
C. Payment to transition liability/(surplus)	(19,164)
4. Supplemental payment to transition liability	0
5. Interest	(20,962)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($312,100)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(312,100)	(327,783)
2. Combined valuation payroll	932,155	785,821
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.03%)**	**(4.64%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	932,155	785,821
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Springfield/2278
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Springfield/2278

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Springfield/2278

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Springfield -- #2278

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Springfield to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Springfield.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Springfield

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.32%	13.25%	20.98%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.54%)	(7.54%)	(7.54%)	(7.54%)	(7.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.59%**	**17.52%**	**25.25%**	**12.67%**	**17.30%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.65%**	**17.58%**	**25.31%**	**12.67%**	**17.30%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Springfield

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$57,597,266	$64,533,668
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(18,922,484)	(19,893,561)
Allocated pooled OPSRP UAL	4,549,733	5,153,483
Side account	0	0
Net unfunded pension actuarial accrued liability	43,224,515	49,793,590
Combined valuation payroll	30,192,446	29,933,885
Net pension UAL as a percentage of payroll	143%	166%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.54%)	(7.39%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($345,951)	($4,076)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$953,479	$163,712	17.48%	$1,092,228	$190,921
Tier 2 General Service	12.64%	6,129,625	774,785	12.54%	6,437,873	807,309
Total General Service		**7,083,104**	**938,497**		**7,530,101**	**998,230**
Tier 1 Police & Fire	22.26%	3,316,499	738,253	22.14%	3,241,613	717,693
Tier 2 Police & Fire	20.05%	4,555,120	913,302	19.73%	4,237,625	836,083
Total Police & Fire		**7,871,619**	**1,651,555**		**7,479,238**	**1,553,776**
Total		**$14,954,723**	**$2,590,052**		**$15,009,339**	**$2,552,006**
Employer normal cost rate						
General Service			**13.25%**			**13.26%**
Police & Fire			**20.98%**			**20.77%**
Aggregate (Default)			**17.32%**			**17.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	(\$19,893,561)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.56%)
B. Actual employer payroll	14,545,092
C. Payment to transition liability/(surplus)	(1,099,609)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(7.44%)
B. Actual employer payroll	15,354,592
C. Payment to transition liability/(surplus)	(1,142,381)
4. Supplemental payment to transition liability	0
5. Interest	(1,270,913)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**(\$18,922,484)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(18,922,484)	(19,893,561)
2. Combined valuation payroll	30,192,446	29,933,885
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.54%)**	**(7.39%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	30,192,446	29,933,885
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of St Helens/2123
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of St Helens/2123

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of St Helens/2123

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of St Helens -- #2123

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of St Helens to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of St Helens.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of St Helens

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.74%	13.83%	20.58%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	2.01%	2.01%	2.01%	2.01%	2.01%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.56%**	**27.65%**	**34.40%**	**22.22%**	**26.85%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.62%**	**27.71%**	**34.46%**	**22.22%**	**26.85%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of St Helens

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$8,915,269	$9,007,028
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	780,919	826,086
Allocated pooled OPSRP UAL	704,237	719,277
Side account	0	0
Net unfunded pension actuarial accrued liability	10,400,425	10,552,391
Combined valuation payroll	4,673,378	4,177,902
Net pension UAL as a percentage of payroll	223%	253%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	2.01%	2.20%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($53,548)	($569)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$325,805	$55,941	17.48%	$309,153	$54,040
Tier 2 General Service	12.64%	914,555	115,600	12.54%	928,912	116,486
Total General Service		**1,240,360**	**171,541**		**1,238,065**	**170,526**
Tier 1 Police & Fire	22.26%	118,461	26,369	22.14%	111,898	24,774
Tier 2 Police & Fire	20.05%	371,231	74,432	19.73%	344,906	68,050
Total Police & Fire		**489,692**	**100,801**		**456,804**	**92,824**
Total		**$1,730,052**	**$272,342**		**$1,694,869**	**$263,350**
Employer normal cost rate						
General Service			**13.83%**			**13.77%**
Police & Fire			**20.58%**			**20.32%**
Aggregate (Default)			**15.74%**			**15.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$826,086
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	2.10%
B. Actual employer payroll	2,200,441
C. Payment to transition liability/(surplus)	46,209
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	2.26%
B. Actual employer payroll	2,274,667
C. Payment to transition liability/(surplus)	51,408
4. Supplemental payment to transition liability	0
5. Interest	52,450
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$780,919**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	780,919	826,086
2. Combined valuation payroll	4,673,378	4,177,902
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**2.01%**	**2.20%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,673,378	4,177,902
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Stayton/2757
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Stayton/2757

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Stayton/2757

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Stayton -- #2757

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Stayton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Stayton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Stayton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.05%	14.62%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.91%)	(0.91%)	(0.91%)	(0.91%)	(0.91%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.27%**	**23.84%**	**29.27%**	**17.62%**	**22.25%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.33%**	**23.90%**	**29.33%**	**17.62%**	**22.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Stayton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,965,600	$2,145,211
Allocated pre-SLGRP pooled liability/(surplus)	(143,865)	(150,540)
Transition liability/(surplus)	(77,685)	(82,121)
Allocated pooled OPSRP UAL	155,267	171,311
Side account	0	0
Net unfunded pension actuarial accrued liability	1,899,317	2,083,861
Combined valuation payroll	1,030,366	995,054
Net pension UAL as a percentage of payroll	184%	209%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.91%)	(0.92%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11,806)	($135)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	567,092	113,702	19.73%	547,681	108,057
Total Police & Fire		**567,092**	**113,702**		**547,681**	**108,057**
Total		**$567,092**	**$113,702**		**$547,681**	**$108,057**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**20.05%**			**19.73%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($82,121)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.01%)
B. Actual employer payroll	480,734
C. Payment to transition liability/(surplus)	(4,855)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.95%)
B. Actual employer payroll	505,137
C. Payment to transition liability/(surplus)	(4,799)
4. Supplemental payment to transition liability	0
5. Interest	(5,218)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($77,685)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(77,685)	(82,121)
2. Combined valuation payroll	1,030,366	995,054
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.91%)**	**(0.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,030,366	995,054
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Sutherlin/2217
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Sutherlin/2217

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Sutherlin/2217

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Sutherlin -- #2217

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Sutherlin to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Sutherlin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Sutherlin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.75%	14.41%	21.15%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.65%)	(7.65%)	(7.65%)	(7.65%)	(7.65%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.23%**	**16.89%**	**23.63%**	**10.88%**	**15.51%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.29%**	**16.95%**	**23.69%**	**10.88%**	**15.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Sutherlin

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,652,753	$4,993,805
Allocated pre-SLGRP pooled liability/(surplus)	(340,542)	(350,439)
Transition liability/(surplus)	(1,550,435)	(1,666,009)
Allocated pooled OPSRP UAL	367,531	398,792
Side account	0	0
Net unfunded pension actuarial accrued liability	3,129,307	3,376,149
Combined valuation payroll	2,438,970	2,316,372
Net pension UAL as a percentage of payroll	128%	146%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(7.65%)	(8.00%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($27,946)	($315)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$240,793	$41,344	17.48%	$227,435	$39,756
Tier 2 General Service	12.64%	375,205	47,426	12.54%	290,227	36,394
Total General Service		**615,998**	**88,770**		**517,662**	**76,150**
Tier 1 Police & Fire	22.26%	76,131	16,947	22.14%	77,788	17,222
Tier 2 Police & Fire	20.05%	77,171	15,473	19.73%	163,317	32,222
Total Police & Fire		**153,302**	**32,420**		**241,105**	**49,444**
Total		**$769,300**	**$121,190**		**$758,767**	**$125,594**
Employer normal cost rate						
General Service			**14.41%**			**14.71%**
Police & Fire			**21.15%**			**20.51%**
Aggregate (Default)			**15.75%**			**16.55%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,666,009)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.87%)
B. Actual employer payroll	1,233,432
C. Payment to transition liability/(surplus)	(97,071)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.10%)
B. Actual employer payroll	1,347,664
C. Payment to transition liability/(surplus)	(122,637)
4. Supplemental payment to transition liability	0
5. Interest	(104,134)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,550,435)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,550,435)	(1,666,009)
2. Combined valuation payroll	2,438,970	2,316,372
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.65%)**	**(8.00%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,438,970	2,316,372
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Talent/2188
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Talent/2188

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Talent/2188

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Talent -- #2188

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Talent to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Talent.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Talent

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.59%	16.06%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.86%)	(5.86%)	(5.86%)	(5.86%)	(5.86%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.54%**	**22.01%**	**26.00%**	**14.35%**	**18.98%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.60%**	**22.07%**	**26.06%**	**14.35%**	**18.98%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Talent

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,523,465	$3,233,730
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(644,614)	(687,167)
Allocated pooled OPSRP UAL	199,334	258,237
Side account	0	0
Net unfunded pension actuarial accrued liability	2,078,185	2,804,800
Combined valuation payroll	1,322,798	1,499,963
Net pension UAL as a percentage of payroll	157%	187%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.86%)	(5.09%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($15,157)	($204)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$184,828	$31,735	17.48%	$189,977	$33,208
Tier 2 General Service	12.64%	59,698	7,546	12.54%	57,439	7,203
Total General Service		**244,526**	**39,281**		**247,416**	**40,411**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	152,053	30,487	19.73%	143,386	28,290
Total Police & Fire		**152,053**	**30,487**		**143,386**	**28,290**
Total		**$396,579**	**$69,768**		**$390,802**	**$68,701**
Employer normal cost rate						
General Service			**16.06%**			**16.33%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**17.59%**			**17.58%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($687,167)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.80%)
B. Actual employer payroll	698,027
C. Payment to transition liability/(surplus)	(47,466)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.87%)
B. Actual employer payroll	653,870
C. Payment to transition liability/(surplus)	(38,382)
4. Supplemental payment to transition liability	0
5. Interest	(43,295)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($644,614)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(644,614)	(687,167)
2. Combined valuation payroll	1,322,798	1,499,963
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.86%)**	**(5.09%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,322,798	1,499,963
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Tigard/2295
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Tigard/2295

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Tigard/2295

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tigard -- #2295

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tigard to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tigard.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Tigard

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.60%	14.62%	20.60%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.54%)	(5.54%)	(5.54%)	(5.54%)	(5.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.19%**	**19.21%**	**25.19%**	**12.99%**	**17.62%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.25%**	**19.27%**	**25.25%**	**12.99%**	**17.62%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tigard

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$12,145,610	$14,022,407
Allocated pre-SLGRP pooled liability/(surplus)	(888,955)	(984,019)
Transition liability/(surplus)	(2,930,788)	(3,066,998)
Allocated pooled OPSRP UAL	959,408	1,119,791
Side account	0	0
Net unfunded pension actuarial accrued liability	9,285,275	11,091,181
Combined valuation payroll	6,366,720	6,504,281
Net pension UAL as a percentage of payroll	146%	171%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(5.54%)	(5.24%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($72,951)	($886)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	717,565	159,730	22.14%	1,166,355	258,231
Tier 2 Police & Fire	20.05%	2,143,351	429,742	19.73%	2,163,025	426,765
Total Police & Fire		**2,860,916**	**589,472**		**3,329,380**	**684,996**
Total		**$2,860,916**	**$589,472**		**$3,329,380**	**$684,996**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.60%**			**20.57%**
Aggregate (Default)			**20.60%**			**20.57%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($3,066,998)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.20%)
B. Actual employer payroll	3,093,232
C. Payment to transition liability/(surplus)	(160,848)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.40%)
B. Actual employer payroll	3,188,997
C. Payment to transition liability/(surplus)	(172,206)
4. Supplemental payment to transition liability	0
5. Interest	(196,844)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,930,788)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,930,788)	(3,066,998)
2. Combined valuation payroll	6,366,720	6,504,281
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.54%)**	**(5.24%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	6,366,720	6,504,281
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Tillamook/2128
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Tillamook/2128

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tillamook -- #2128

October 2018

Secondary Employers

2755 Tillamook Water Commission

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tillamook to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tillamook.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Tillamook

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.94%	14.02%	20.86%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.75%)	(3.75%)	(3.75%)	(3.75%)	(3.75%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.00%**	**22.08%**	**28.92%**	**16.46%**	**21.09%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.06%**	**22.14%**	**28.98%**	**16.46%**	**21.09%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tillamook

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$3,583,246	$4,361,502
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(585,056)	(612,549)
Allocated pooled OPSRP UAL	283,048	348,298
Side account	0	0
Net unfunded pension actuarial accrued liability	3,281,238	4,097,251
Combined valuation payroll	1,878,335	2,023,079
Net pension UAL as a percentage of payroll	175%	203%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.75%)	(3.37%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($21,522)	($275)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$119,481	$20,515	17.48%	$183,182	$32,020
Tier 2 General Service	12.64%	273,066	34,516	12.54%	442,342	55,470
Total General Service		**392,547**	**55,031**		**625,524**	**87,490**
Tier 1 Police & Fire	22.26%	107,311	23,887	22.14%	100,670	22,288
Tier 2 Police & Fire	20.05%	184,445	36,981	19.73%	187,577	37,009
Total Police & Fire		**291,756**	**60,868**		**288,247**	**59,297**
Total		**$684,303**	**$115,899**		**$913,771**	**$146,787**
Employer normal cost rate						
General Service			**14.02%**			**13.99%**
Police & Fire			**20.86%**			**20.57%**
Aggregate (Default)			**16.94%**			**16.06%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($612,549)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(3.46%)
B. Actual employer payroll	993,568
C. Payment to transition liability/(surplus)	(34,377)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(3.48%)
B. Actual employer payroll	931,350
C. Payment to transition liability/(surplus)	(32,411)
4. Supplemental payment to transition liability	0
5. Interest	(39,295)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($585,056)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(585,056)	(612,549)
2. Combined valuation payroll	1,878,335	2,023,079
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.75%)**	**(3.37%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,878,335	2,023,079
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Toledo/2275
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Toledo/2275

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Toledo -- #2275

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Toledo to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Toledo.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Toledo

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.36%	13.59%	20.47%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(12.09%)	(12.09%)	(12.09%)	(12.09%)	(12.09%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**15.40%**	**11.63%**	**18.51%**	**6.44%**	**11.07%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.46%**	**11.69%**	**18.57%**	**6.44%**	**11.07%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Toledo

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,447,743	$4,506,653
Allocated pre-SLGRP pooled liability/(surplus)	(252,345)	(316,253)
Transition liability/(surplus)	(1,816,746)	(1,891,707)
Allocated pooled OPSRP UAL	272,345	359,889
Side account	0	0
Net unfunded pension actuarial accrued liability	1,650,997	2,658,582
Combined valuation payroll	1,807,304	2,090,407
Net pension UAL as a percentage of payroll	91%	127%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(12.09%)	(10.06%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($20,708)	($285)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	 December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	 December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$56,113	$9,635	17.48%	$213,709	$37,356
Tier 2 General Service	12.64%	211,753	26,766	12.54%	299,709	37,584
Total General Service		**267,866**	**36,401**		**513,418**	**74,940**
Tier 1 Police & Fire	22.26%	62,242	13,855	22.14%	54,511	12,069
Tier 2 Police & Fire	20.05%	262,261	52,583	19.73%	254,256	50,165
Total Police & Fire		**324,503**	**66,438**		**308,767**	**62,234**
Total		**$592,369**	**$102,839**		**$822,185**	**$137,174**
Employer normal cost rate						
General Service			**13.59%**			**14.60%**
Police & Fire			**20.47%**			**20.16%**
Aggregate (Default)			**17.36%**			**16.68%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,891,707)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(8.95%)
B. Actual employer payroll	1,030,858
C. Payment to transition liability/(surplus)	(92,262)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.53%)
B. Actual employer payroll	1,098,841
C. Payment to transition liability/(surplus)	(104,719)
4. Supplemental payment to transition liability	0
5. Interest	(122,020)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,816,746)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,816,746)	(1,891,707)
2. Combined valuation payroll	1,807,304	2,090,407
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(12.09%)**	**(10.06%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,807,304	2,090,407
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Troutdale/2237
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Troutdale/2237

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Troutdale/2237

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Troutdale -- #2237

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Troutdale to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Troutdale.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Troutdale

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.40%	14.40%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.51%	10.51%	10.51%	10.51%	10.51%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(11.73%)	(11.73%)	(11.73%)	(11.73%)	(11.73%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.63%**	**14.63%**	**21.06%**	**8.63%**	**13.26%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.69%**	**14.69%**	**21.12%**	**8.63%**	**13.26%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Troutdale

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,508,468	$5,642,233
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,816,458)	(2,883,680)
Allocated pooled OPSRP UAL	435,126	450,573
Side account	0	0
Net unfunded pension actuarial accrued liability	3,127,136	3,209,126
Combined valuation payroll	2,887,535	2,617,145
Net pension UAL as a percentage of payroll	108%	123%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(11.73%)	(12.25%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($33,086)	($356)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$538,198	$92,409	17.48%	$570,269	$99,683
Tier 2 General Service	12.64%	849,394	107,363	12.54%	880,906	110,466
Total General Service		**1,387,592**	**199,772**		**1,451,175**	**210,149**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,387,592**	**$199,772**		**$1,451,175**	**$210,149**
Employer normal cost rate						
General Service			**14.40%**			**14.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.40%**			**14.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,883,680)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.95%)
B. Actual employer payroll	1,354,304
C. Payment to transition liability/(surplus)	(80,581)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(11.51%)
B. Actual employer payroll	1,527,424
C. Payment to transition liability/(surplus)	(175,806)
4. Supplemental payment to transition liability	0
5. Interest	(189,165)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,816,458)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,816,458)	(2,883,680)
2. Combined valuation payroll	2,887,535	2,617,145
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(11.73%)**	**(12.25%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,887,535	2,617,145
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Tualatin/2288
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Tualatin/2288

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Tualatin/2288

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Tualatin -- #2288

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Tualatin to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Tualatin.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Tualatin

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.20%	13.82%	20.73%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	1.45%	1.45%	1.45%	1.45%	1.45%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.78%**	**25.40%**	**32.31%**	**19.98%**	**24.61%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.84%**	**25.46%**	**32.37%**	**19.98%**	**24.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Tualatin

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$21,455,723	$23,540,959
Allocated pre-SLGRP pooled liability/(surplus)	(1,570,376)	(1,651,980)
Transition liability/(surplus)	1,351,539	1,420,787
Allocated pooled OPSRP UAL	1,694,834	1,879,917
Side account	0	0
Net unfunded pension actuarial accrued liability	22,931,720	25,189,683
Combined valuation payroll	11,247,075	10,919,453
Net pension UAL as a percentage of payroll	204%	231%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	1.45%	1.45%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($128,871)	($1,487)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$504,946	$86,699	17.48%	$473,690	$82,801
Tier 2 General Service	12.64%	1,431,741	180,972	12.54%	1,469,357	184,257
Total General Service		**1,936,687**	**267,671**		**1,943,047**	**267,058**
Tier 1 Police & Fire	22.26%	570,003	126,883	22.14%	554,510	122,769
Tier 2 Police & Fire	20.05%	1,289,192	258,483	19.73%	1,253,083	247,233
Total Police & Fire		**1,859,195**	**385,366**		**1,807,593**	**370,002**
Total		**$3,795,882**	**$653,037**		**$3,750,640**	**$637,060**
Employer normal cost rate						
General Service			**13.82%**			**13.74%**
Police & Fire			**20.73%**			**20.47%**
Aggregate (Default)			**17.20%**			**16.99%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$1,420,787
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.42%
B. Actual employer payroll	5,406,710
C. Payment to transition liability/(surplus)	76,775
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	1.50%
B. Actual employer payroll	5,549,863
C. Payment to transition liability/(surplus)	83,248
4. Supplemental payment to transition liability	0
5. Interest	90,775
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,351,539**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	1,351,539	1,420,787
2. Combined valuation payroll	11,247,075	10,919,453
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**1.45%**	**1.45%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	11,247,075	10,919,453
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Turner/2228
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Turner/2228

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Turner/2228

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Turner -- #2228

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Turner to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Turner.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Turner

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.60%	12.64%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.54%)	(0.54%)	(0.54%)	(0.54%)	(0.54%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.87%**	**23.91%**	**31.32%**	**19.67%**	**24.30%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.93%**	**23.97%**	**31.38%**	**19.67%**	**24.30%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Turner

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$915,117	$866,133
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(21,434)	(23,135)
Allocated pooled OPSRP UAL	72,287	69,167
Side account	0	0
Net unfunded pension actuarial accrued liability	965,970	912,165
Combined valuation payroll	479,704	401,755
Net pension UAL as a percentage of payroll	201%	227%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.54%)	(0.64%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,497)	($55)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	203,357	25,704	12.54%	196,630	24,657
Total General Service		**203,357**	**25,704**		**196,630**	**24,657**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	73,382	14,713	19.73%	71,882	14,182
Total Police & Fire		**73,382**	**14,713**		**71,882**	**14,182**
Total		**$276,739**	**$40,417**		**$268,512**	**$38,839**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**14.60%**			**14.46%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($23,135)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.77%)
B. Actual employer payroll	203,257
C. Payment to transition liability/(surplus)	(1,565)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.76%)
B. Actual employer payroll	207,287
C. Payment to transition liability/(surplus)	(1,576)
4. Supplemental payment to transition liability	0
5. Interest	(1,440)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($21,434)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(21,434)	(23,135)
2. Combined valuation payroll	479,704	401,755
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.54%)**	**(0.64%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	479,704	401,755
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Umatilla/2175
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Umatilla/2175

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Umatilla/2175

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Umatilla -- #2175

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Umatilla to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Umatilla.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Umatilla

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.39%	14.28%	21.42%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(7.51%)	(7.51%)	(7.51%)	(7.51%)	(7.51%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.01%**	**16.90%**	**24.04%**	**11.02%**	**15.65%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.07%**	**16.96%**	**24.10%**	**11.02%**	**15.65%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Umatilla

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,122,492	$4,116,722
Allocated pre-SLGRP pooled liability/(surplus)	(301,731)	(288,890)
Transition liability/(surplus)	(1,349,682)	(1,431,528)
Allocated pooled OPSRP UAL	325,645	328,750
Side account	0	0
Net unfunded pension actuarial accrued liability	2,796,724	2,725,054
Combined valuation payroll	2,161,007	1,909,538
Net pension UAL as a percentage of payroll	129%	143%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(7.51%)	(8.34%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($24,761)	($260)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$239,152	$41,062	17.48%	$198,250	$34,654
Tier 2 General Service	12.64%	420,594	53,163	12.54%	425,897	53,407
Total General Service		**659,746**	**94,225**		**624,147**	**88,061**
Tier 1 Police & Fire	22.26%	171,541	38,185	22.14%	165,538	36,650
Tier 2 Police & Fire	20.05%	104,521	20,956	19.73%	99,710	19,673
Total Police & Fire		**276,062**	**59,141**		**265,248**	**56,323**
Total		**$935,808**	**$153,366**		**$889,395**	**$144,384**
Employer normal cost rate						
General Service			**14.28%**			**14.11%**
Police & Fire			**21.42%**			**21.23%**
Aggregate (Default)			**16.39%**			**16.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,431,528)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(8.75%)
B. Actual employer payroll	973,926
C. Payment to transition liability/(surplus)	(85,219)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(8.41%)
B. Actual employer payroll	1,037,770
C. Payment to transition liability/(surplus)	(87,277)
4. Supplemental payment to transition liability	0
5. Interest	(90,650)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,349,682)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,349,682)	(1,431,528)
2. Combined valuation payroll	2,161,007	1,909,538
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.51%)**	**(8.34%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,161,007	1,909,538
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Vale/2145
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Vale/2145

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Vale/2145

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Vale -- #2145

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Vale to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Vale.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Vale

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.45%	14.39%	20.03%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	7.11%	7.11%	7.11%	7.11%	7.11%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**31.69%**	**31.63%**	**37.27%**	**25.64%**	**30.27%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**31.75%**	**31.69%**	**37.33%**	**25.64%**	**30.27%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Vale

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$745,572	$993,358
Allocated pre-SLGRP pooled liability/(surplus)	(54,570)	(69,709)
Transition liability/(surplus)	230,897	243,238
Allocated pooled OPSRP UAL	58,894	79,327
Side account	0	0
Net unfunded pension actuarial accrued liability	980,793	1,246,214
Combined valuation payroll	390,828	460,768
Net pension UAL as a percentage of payroll	251%	270%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	7.11%	5.87%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,478)	($63)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$40,191	$6,901	17.48%	$84,131	$14,706
Tier 2 General Service	12.64%	63,821	8,067	12.54%	51,990	6,520
Total General Service		**104,012**	**14,968**		**136,121**	**21,226**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	1,178	236	19.73%	1,474	291
Total Police & Fire		**1,178**	**236**		**1,474**	**291**
Total		**$105,190**	**$15,204**		**$137,595**	**$21,517**
Employer normal cost rate						
General Service			**14.39%**			**15.59%**
Police & Fire			**20.03%**			**19.74%**
Aggregate (Default)			**14.45%**			**15.64%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$243,238
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	7.24%
B. Actual employer payroll	223,205
C. Payment to transition liability/(surplus)	16,160
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	5.58%
B. Actual employer payroll	209,479
C. Payment to transition liability/(surplus)	11,689
4. Supplemental payment to transition liability	0
5. Interest	15,508
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$230,897**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	230,897	243,238
2. Combined valuation payroll	390,828	460,768
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**7.11%**	**5.87%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	390,828	460,768
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Veneta/2285
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Veneta/2285

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Veneta/2285

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Veneta -- #2285

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Veneta to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Veneta.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Veneta

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.61%	15.61%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.51%)	(2.51%)	(2.51%)	(2.51%)	(2.51%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.23%**	**23.23%**	**28.45%**	**16.02%**	**20.65%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.29%**	**23.29%**	**28.51%**	**16.02%**	**20.65%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Veneta

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,799,280	$2,064,988
Allocated pre-SLGRP pooled liability/(surplus)	(131,692)	(144,910)
Transition liability/(surplus)	(196,941)	(207,376)
Allocated pooled OPSRP UAL	142,129	164,904
Side account	0	0
Net unfunded pension actuarial accrued liability	1,612,776	1,877,606
Combined valuation payroll	943,181	957,843
Net pension UAL as a percentage of payroll	171%	196%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.51%)	(2.41%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($10,807)	($130)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$352,242	$60,480	17.48%	$345,506	$60,394
Tier 2 General Service	12.64%	184,873	23,368	12.54%	176,958	22,191
Total General Service		**537,115**	**83,848**		**522,464**	**82,585**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$537,115**	**$83,848**		**$522,464**	**$82,585**
Employer normal cost rate						
General Service			**15.61%**			**15.81%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.61%**			**15.81%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($207,376)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.55%)
B. Actual employer payroll	462,886
C. Payment to transition liability/(surplus)	(11,804)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.56%)
B. Actual employer payroll	463,240
C. Payment to transition liability/(surplus)	(11,858)
4. Supplemental payment to transition liability	0
5. Interest	(13,227)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($196,941)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(196,941)	(207,376)
2. Combined valuation payroll	943,181	957,843
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.51%)**	**(2.41%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	943,181	957,843
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Vernonia/2125
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Vernonia/2125

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Vernonia -- #2125

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Vernonia to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Vernonia.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Vernonia

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.66%)	(5.66%)	(5.66%)	(5.66%)	(5.66%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**21.64%**	**21.64%**	**25.30%**	**12.87%**	**17.50%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.70%**	**21.70%**	**25.36%**	**12.87%**	**17.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Vernonia

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$1,368,079	$1,544,041
Allocated pre-SLGRP pooled liability/(surplus)	(100,132)	(108,353)
Transition liability/(surplus)	(337,607)	(357,490)
Allocated pooled OPSRP UAL	108,068	123,303
Side account	0	0
Net unfunded pension actuarial accrued liability	1,038,408	1,201,501
Combined valuation payroll	717,146	716,202
Net pension UAL as a percentage of payroll	145%	168%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(5.66%)	(5.55%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,217)	($98)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$74,926	$12,865	17.48%	$70,800	$12,376
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**74,926**	**12,865**		**70,800**	**12,376**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$74,926**	**$12,865**		**$70,800**	**$12,376**
Employer normal cost rate						
General Service			**17.17%**			**17.48%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**17.48%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($357,490)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.50%)
B. Actual employer payroll	326,856
C. Payment to transition liability/(surplus)	(21,246)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.04%)
B. Actual employer payroll	352,852
C. Payment to transition liability/(surplus)	(21,312)
4. Supplemental payment to transition liability	0
5. Interest	(22,675)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($337,607)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(337,607)	(357,490)
2. Combined valuation payroll	717,146	716,202
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.66%)**	**(5.55%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	717,146	716,202
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Wallowa/2200
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of Wallowa/2200

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Wallowa/2200

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wallowa -- #2200

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wallowa to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wallowa.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Wallowa

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.66%	13.66%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(5.56%)	(5.56%)	(5.56%)	(5.56%)	(5.56%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.23%**	**18.23%**	**25.40%**	**12.97%**	**17.60%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.29%**	**18.29%**	**25.46%**	**12.97%**	**17.60%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wallowa

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$324,415	$323,168
Allocated pre-SLGRP pooled liability/(surplus)	(23,744)	(22,678)
Transition liability/(surplus)	(78,540)	(82,560)
Allocated pooled OPSRP UAL	25,626	25,807
Side account	0	0
Net unfunded pension actuarial accrued liability	247,757	243,737
Combined valuation payroll	170,058	149,901
Net pension UAL as a percentage of payroll	146%	163%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(5.56%)	(6.12%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,949)	($20)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$15,266	$2,621	17.48%	$12,913	$2,257
Tier 2 General Service	12.64%	52,639	6,654	12.54%	46,827	5,872
Total General Service		**67,905**	**9,275**		**59,740**	**8,129**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$67,905**	**$9,275**		**$59,740**	**$8,129**
Employer normal cost rate						
General Service			**13.66%**			**13.61%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.66%**			**13.61%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($82,560)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.61%)
B. Actual employer payroll	78,482
C. Payment to transition liability/(surplus)	(4,403)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.83%)
B. Actual employer payroll	83,920
C. Payment to transition liability/(surplus)	(4,892)
4. Supplemental payment to transition liability	0
5. Interest	(5,275)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($78,540)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(78,540)	(82,560)
2. Combined valuation payroll	170,058	149,901
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.56%)**	**(6.12%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	170,058	149,901
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Warrenton/2238
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Warrenton/2238

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Warrenton -- #2238

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Warrenton to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Warrenton.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Warrenton

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.52%	15.49%	20.56%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.59%)	(2.59%)	(2.59%)	(2.59%)	(2.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.74%**	**24.71%**	**29.78%**	**17.62%**	**22.25%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.80%**	**24.77%**	**29.84%**	**17.62%**	**22.25%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Warrenton

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$4,712,479	$5,789,408
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(531,765)	(560,043)
Allocated pooled OPSRP UAL	372,249	462,326
Side account	0	0
Net unfunded pension actuarial accrued liability	4,552,963	5,691,691
Combined valuation payroll	2,470,278	2,685,412
Net pension UAL as a percentage of payroll	184%	212%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.59%)	(2.32%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($28,305)	($366)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$354,283	$60,830	17.48%	$398,493	$69,657
Tier 2 General Service	12.64%	208,728	26,383	12.54%	255,253	32,009
Total General Service		**563,011**	**87,213**		**653,746**	**101,666**
Tier 1 Police & Fire	22.26%	87,161	19,402	22.14%	86,025	19,046
Tier 2 Police & Fire	20.05%	290,133	58,172	19.73%	353,808	69,806
Total Police & Fire		**377,294**	**77,574**		**439,833**	**88,852**
Total		**$940,305**	**$164,787**		**$1,093,579**	**$190,518**
Employer normal cost rate						
General Service			**15.49%**			**15.55%**
Police & Fire			**20.56%**			**20.20%**
Aggregate (Default)			**17.52%**			**17.42%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($560,043)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.53%)
B. Actual employer payroll	1,320,941
C. Payment to transition liability/(surplus)	(33,420)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.33%)
B. Actual employer payroll	1,312,225
C. Payment to transition liability/(surplus)	(30,574)
4. Supplemental payment to transition liability	0
5. Interest	(35,716)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($531,765)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(531,765)	(560,043)
2. Combined valuation payroll	2,470,278	2,685,412
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.59%)**	**(2.32%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,470,278	2,685,412
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of West Linn/2126
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
City of West Linn/2126

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of West Linn/2126

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of West Linn -- #2126

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of West Linn to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of West Linn.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of West Linn

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.93%	14.38%	20.99%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.41%)	(4.41%)	(4.41%)	(4.41%)	(4.41%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.33%**	**21.78%**	**28.39%**	**15.80%**	**20.43%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.39%**	**21.84%**	**28.45%**	**15.80%**	**20.43%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of West Linn

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$16,530,768	$19,759,376
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,175,916)	(3,338,442)
Allocated pooled OPSRP UAL	1,305,801	1,577,930
Side account	0	0
Net unfunded pension actuarial accrued liability	14,660,653	17,998,864
Combined valuation payroll	8,665,417	9,165,369
Net pension UAL as a percentage of payroll	169%	196%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.41%)	(4.05%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($99,290)	($1,248)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,059,666	$181,945	17.48%	$1,110,588	$194,131
Tier 2 General Service	12.64%	1,702,491	215,195	12.54%	1,596,986	200,262
Total General Service		**2,762,157**	**397,140**		**2,707,574**	**394,393**
Tier 1 Police & Fire	22.26%	359,984	80,132	22.14%	816,561	180,787
Tier 2 Police & Fire	20.05%	490,498	98,345	19.73%	541,269	106,792
Total Police & Fire		**850,482**	**178,477**		**1,357,830**	**287,579**
Total		**$3,612,639**	**$575,617**		**$4,065,404**	**$681,972**
Employer normal cost rate						
General Service			**14.38%**			**14.57%**
Police & Fire			**20.99%**			**21.18%**
Aggregate (Default)			**15.93%**			**16.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($3,338,442)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.28%)
B. Actual employer payroll	4,513,175
C. Payment to transition liability/(surplus)	(193,164)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.07%)
B. Actual employer payroll	4,488,210
C. Payment to transition liability/(surplus)	(182,670)
4. Supplemental payment to transition liability	0
5. Interest	(213,308)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,175,916)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(3,175,916)	(3,338,442)
2. Combined valuation payroll	8,665,417	9,165,369
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.41%)**	**(4.05%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	8,665,417	9,165,369
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Westfir/2265
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Westfir/2265

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Westfir/2265

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Westfir -- #2265

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Westfir to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Westfir.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Westfir

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.98%)	(8.98%)	(8.98%)	(8.98%)	(8.98%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.66%**	**17.45%**	**23.66%**	**11.23%**	**15.86%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.72%**	**17.51%**	**23.72%**	**11.23%**	**15.86%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Westfir

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$121,905	$77,721
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(62,574)	(64,604)
Allocated pooled OPSRP UAL	9,630	6,207
Side account	0	0
Net unfunded pension actuarial accrued liability	68,961	19,324
Combined valuation payroll	63,903	36,051
Net pension UAL as a percentage of payroll	108%	54%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.98%)	(15.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($732)	($5)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($64,604)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(10.62%)
B. Actual employer payroll	29,830
C. Payment to transition liability/(surplus)	(3,168)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.91%)
B. Actual employer payroll	30,933
C. Payment to transition liability/(surplus)	(3,065)
4. Supplemental payment to transition liability	0
5. Interest	(4,203)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($62,574)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(62,574)	(64,604)
2. Combined valuation payroll	63,903	36,051
3. Regular amortization factor	10.901	11.494
4. **Total transition liability/(surplus) rate**	**(8.98%)**	**(15.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	63,903	36,051
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Weston/2206
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Weston/2206

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Weston -- #2206

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Weston to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Weston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Weston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(9.55%)	(9.55%)	(9.55%)	(9.55%)	(9.55%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**14.90%**	**14.90%**	**23.09%**	**10.66%**	**15.29%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.96%**	**14.96%**	**23.15%**	**10.66%**	**15.29%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Weston

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$386,299	$411,658
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(233,420)	(237,765)
Allocated pooled OPSRP UAL	30,515	32,874
Side account	0	0
Net unfunded pension actuarial accrued liability	183,394	206,767
Combined valuation payroll	202,498	190,947
Net pension UAL as a percentage of payroll	91%	108%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(9.55%)	(9.87%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,320)	($26)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	36,232	4,580	12.54%	35,187	4,412
Total General Service		**36,232**	**4,580**		**35,187**	**4,412**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$36,232**	**$4,580**		**$35,187**	**$4,412**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($237,765)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(10.38%)
B. Actual employer payroll	93,763
C. Payment to transition liability/(surplus)	(9,733)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.38%)
B. Actual employer payroll	99,122
C. Payment to transition liability/(surplus)	(10,289)
4. Supplemental payment to transition liability	0
5. Interest	(15,677)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($233,420)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(233,420)	(237,765)
2. Combined valuation payroll	202,498	190,947
3. Regular amortization factor	12.066	12.618
4. **Total transition liability/(surplus) rate**	**(9.55%)**	**(9.87%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	202,498	190,947
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Wheeler/2147
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Wheeler/2147

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wheeler -- #2147

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wheeler to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wheeler.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Wheeler

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**27.64%**	**26.43%**	**32.64%**	**20.21%**	**24.84%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**27.70%**	**26.49%**	**32.70%**	**20.21%**	**24.84%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wheeler

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$330,078	$364,052
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	26,074	29,072
Side account	0	0
Net unfunded pension actuarial accrued liability	356,152	393,124
Combined valuation payroll	173,027	168,865
Net pension UAL as a percentage of payroll	206%	233%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,983)	($23)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	173,027	168,865
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	173,027	168,865
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Wilsonville/2240
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Wilsonville/2240

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Wilsonville/2240

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wilsonville -- #2240

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wilsonville to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wilsonville.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Wilsonville

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.77%	14.77%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.59%)	(0.59%)	(0.59%)	(0.59%)	(0.59%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.31%**	**24.31%**	**30.37%**	**17.94%**	**22.57%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.37%**	**24.37%**	**30.43%**	**17.94%**	**22.57%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wilsonville

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$17,481,114	$18,701,336
Allocated pre-SLGRP pooled liability/(surplus)	(1,279,469)	(1,312,361)
Transition liability/(surplus)	(450,851)	(470,761)
Allocated pooled OPSRP UAL	1,380,871	1,493,438
Side account	0	0
Net unfunded pension actuarial accrued liability	17,131,665	18,411,652
Combined valuation payroll	9,163,588	8,674,598
Net pension UAL as a percentage of payroll	187%	212%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.59%)	(0.60%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($104,998)	($1,181)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$1,733,146	$297,581	17.48%	$2,013,760	$352,005
Tier 2 General Service	12.64%	1,954,095	246,998	12.54%	2,029,669	254,520
Total General Service		**3,687,241**	**544,579**		**4,043,429**	**606,525**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$3,687,241**	**$544,579**		**$4,043,429**	**$606,525**
Employer normal cost rate						
General Service			**14.77%**			**15.00%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.77%**			**15.00%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($470,761)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.53%)
B. Actual employer payroll	4,412,404
C. Payment to transition liability/(surplus)	(23,386)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.56%)
B. Actual employer payroll	4,786,614
C. Payment to transition liability/(surplus)	(26,805)
4. Supplemental payment to transition liability	0
5. Interest	(30,281)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($450,851)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(450,851)	(470,761)
2. Combined valuation payroll	9,163,588	8,674,598
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.59%)**	**(0.60%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	9,163,588	8,674,598
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Winston/2280
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Winston/2280

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Winston/2280

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Winston -- #2280

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Winston to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Winston.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Winston

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.11%	12.64%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(10.50%)	(10.50%)	(10.50%)	(10.50%)	(10.50%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**17.74%**	**12.27%**	**19.68%**	**8.03%**	**12.66%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**17.80%**	**12.33%**	**19.74%**	**8.03%**	**12.66%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Winston

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,336,824	$2,405,700
Allocated pre-SLGRP pooled liability/(surplus)	(171,036)	(168,819)
Transition liability/(surplus)	(1,069,279)	(1,107,052)
Allocated pooled OPSRP UAL	184,591	192,113
Side account	0	0
Net unfunded pension actuarial accrued liability	1,281,100	1,321,942
Combined valuation payroll	1,224,962	1,115,882
Net pension UAL as a percentage of payroll	105%	118%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(10.50%)	(11.03%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14,036)	($152)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	62,998	7,963	12.54%	105,541	13,235
Total General Service		**62,998**	**7,963**		**105,541**	**13,235**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	177,987	35,686	19.73%	169,351	33,413
Total Police & Fire		**177,987**	**35,686**		**169,351**	**33,413**
Total		**$240,985**	**$43,649**		**$274,892**	**$46,648**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**18.11%**			**16.97%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,107,052)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(8.31%)
B. Actual employer payroll	577,733
C. Payment to transition liability/(surplus)	(48,010)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(9.59%)
B. Actual employer payroll	642,126
C. Payment to transition liability/(surplus)	(61,580)
4. Supplemental payment to transition liability	0
5. Interest	(71,817)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,069,279)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,069,279)	(1,107,052)
2. Combined valuation payroll	1,224,962	1,115,882
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(10.50%)**	**(11.03%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,224,962	1,115,882
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Wood Village/2185
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Wood Village/2185

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Wood Village -- #2185

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Wood Village to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Wood Village.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Wood Village

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.51%	10.51%	10.51%	10.51%	10.51%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.96%)	(2.96%)	(2.96%)	(2.96%)	(2.96%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.96%**	**19.96%**	**28.15%**	**15.72%**	**20.35%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.02%**	**20.02%**	**28.21%**	**15.72%**	**20.35%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Wood Village

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,067,134	$2,045,553
Allocated pre-SLGRP pooled liability/(surplus)	(78,105)	(143,546)
Transition liability/(surplus)	(137,433)	(146,654)
Allocated pooled OPSRP UAL	84,295	163,352
Side account	0	0
Net unfunded pension actuarial accrued liability	935,891	1,918,705
Combined valuation payroll	559,391	948,828
Net pension UAL as a percentage of payroll	167%	202%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.96%)	(1.72%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,410)	($129)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$230,540	$40,298
Tier 2 General Service	12.64%	58,327	7,373	12.54%	116,439	14,601
Total General Service		**58,327**	**7,373**		**346,979**	**54,899**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$58,327**	**$7,373**		**$346,979**	**$54,899**
Employer normal cost rate						
General Service			**12.64%**			**15.82%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**15.82%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($146,654)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.90%)
B. Actual employer payroll	457,267
C. Payment to transition liability/(surplus)	(8,688)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.97%)
B. Actual employer payroll	495,614
C. Payment to transition liability/(surplus)	(9,764)
4. Supplemental payment to transition liability	0
5. Interest	(9,231)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($137,433)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(137,433)	(146,654)
2. Combined valuation payroll	559,391	948,828
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.96%)**	**(1.72%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	559,391	948,828
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Woodburn/2303
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Woodburn/2303

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA	Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Woodburn -- #2303

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Woodburn to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Woodburn.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Woodburn

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.30%	14.24%	20.67%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(2.30%)	(2.30%)	(2.30%)	(2.30%)	(2.30%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.13%**	**22.07%**	**28.50%**	**16.23%**	**20.86%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.19%**	**22.13%**	**28.56%**	**16.23%**	**20.86%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Woodburn

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$15,588,808	$17,082,949
Allocated pre-SLGRP pooled liability/(surplus)	(1,140,968)	(1,198,791)
Transition liability/(surplus)	(1,564,018)	(1,618,913)
Allocated pooled OPSRP UAL	1,231,394	1,364,198
Side account	0	0
Net unfunded pension actuarial accrued liability	14,115,216	15,629,443
Combined valuation payroll	8,171,642	7,923,911
Net pension UAL as a percentage of payroll	173%	197%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(2.30%)	(2.27%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($93,632)	($1,079)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$793,225	$136,197	17.48%	$879,587	$153,752
Tier 2 General Service	12.64%	1,446,284	182,810	12.54%	1,469,485	184,273
Total General Service		**2,239,509**	**319,007**		**2,349,072**	**338,025**
Tier 1 Police & Fire	22.26%	294,662	65,592	22.14%	386,364	85,541
Tier 2 Police & Fire	20.05%	756,777	151,734	19.73%	957,830	188,980
Total Police & Fire		**1,051,439**	**217,326**		**1,344,194**	**274,521**
Total		**$3,290,948**	**$536,333**		**$3,693,266**	**$612,546**
Employer normal cost rate						
General Service			**14.24%**			**14.39%**
Police & Fire			**20.67%**			**20.42%**
Aggregate (Default)			**16.30%**			**16.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,618,913)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.84%)
B. Actual employer payroll	4,004,121
C. Payment to transition liability/(surplus)	(73,676)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.04%)
B. Actual employer payroll	4,228,733
C. Payment to transition liability/(surplus)	(86,265)
4. Supplemental payment to transition liability	0
5. Interest	(105,046)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,564,018)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,564,018)	(1,618,913)
2. Combined valuation payroll	8,171,642	7,923,911
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.30%)**	**(2.27%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	8,171,642	7,923,911
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Yachats/2300
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Yachats/2300

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yachats -- #2300

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yachats to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yachats.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Yachats

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	17.17%	17.17%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(8.10%)	(8.10%)	(8.10%)	(8.10%)	(8.10%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**20.88%**	**20.88%**	**24.54%**	**12.11%**	**16.74%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.94%**	**20.94%**	**24.60%**	**12.11%**	**16.74%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yachats

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$773,431	$940,036
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(272,854)	(278,391)
Allocated pooled OPSRP UAL	61,095	75,069
Side account	0	0
Net unfunded pension actuarial accrued liability	561,672	736,714
Combined valuation payroll	405,432	436,035
Net pension UAL as a percentage of payroll	139%	169%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(8.10%)	(7.10%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,646)	($59)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$143,276	$24,600	17.48%	$144,078	$25,185
Tier 2 General Service	12.64%	0	0	12.54%	74,031	9,283
Total General Service		**143,276**	**24,600**		**218,109**	**34,468**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$143,276**	**$24,600**		**$218,109**	**$34,468**
Employer normal cost rate						
General Service			**17.17%**			**15.80%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**17.17%**			**15.80%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($278,391)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.33%)
B. Actual employer payroll	216,864
C. Payment to transition liability/(surplus)	(11,559)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.82%)
B. Actual employer payroll	211,404
C. Payment to transition liability/(surplus)	(12,304)
4. Supplemental payment to transition liability	0
5. Interest	(18,326)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($272,854)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(272,854)	(278,391)
2. Combined valuation payroll	405,432	436,035
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(8.10%)**	**(7.10%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	405,432	436,035
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Yamhill/2214
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Yamhill/2214

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
City of Yamhill/2214

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yamhill -- #2214

October 2018

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Executive Summary

Milliman has prepared this report for City of Yamhill to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yamhill.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Yamhill

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.36%	13.84%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.33%)	(5.33%)	(5.33%)	(5.33%)	(5.33%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.84%**	**20.32%**	**26.53%**	**14.88%**	**19.51%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.90%**	**20.38%**	**26.59%**	**14.88%**	**19.51%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yamhill

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$869,920	$958,922
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(202,017)	(215,959)
Allocated pooled OPSRP UAL	68,717	76,577
Side account	0	0
Net unfunded pension actuarial accrued liability	736,620	819,540
Combined valuation payroll	456,012	444,795
Net pension UAL as a percentage of payroll	162%	184%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.33%)	(5.40%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,225)	($61)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$45,076	$7,740	17.48%	$44,086	$7,706
Tier 2 General Service	12.64%	124,805	15,775	12.54%	119,451	14,979
Total General Service		**169,881**	**23,515**		**163,537**	**22,685**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	115,873	23,233	19.73%	110,277	21,758
Total Police & Fire		**115,873**	**23,233**		**110,277**	**21,758**
Total		**$285,754**	**$46,748**		**$273,814**	**$44,443**
Employer normal cost rate						
General Service			**13.84%**			**13.87%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**16.36%**			**16.23%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($215,959)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.25%)
B. Actual employer payroll	207,407
C. Payment to transition liability/(surplus)	(15,037)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.85%)
B. Actual employer payroll	213,229
C. Payment to transition liability/(surplus)	(12,473)
4. Supplemental payment to transition liability	0
5. Interest	(13,568)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($202,017)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(202,017)	(215,959)
2. Combined valuation payroll	456,012	444,795
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.33%)**	**(5.40%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	456,012	444,795
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

City of Yoncalla/2307
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
City of Yoncalla/2307

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
City of Yoncalla/2307

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

City of Yoncalla -- #2307

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for City of Yoncalla to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to City of Yoncalla.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for City of Yoncalla

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.38%)	(0.38%)	(0.38%)	(0.38%)	(0.38%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.39%**	**22.39%**	**30.58%**	**18.15%**	**22.78%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.45%**	**22.45%**	**30.64%**	**18.15%**	**22.78%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

City of Yoncalla

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$354,175	$471,414
Allocated pre-SLGRP pooled liability/(surplus)	(25,923)	(33,081)
Transition liability/(surplus)	(5,809)	(6,174)
Allocated pooled OPSRP UAL	27,977	37,646
Side account	0	0
Net unfunded pension actuarial accrued liability	350,420	469,805
Combined valuation payroll	185,658	218,665
Net pension UAL as a percentage of payroll	189%	215%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.38%)	(0.31%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,127)	($30)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	86,855	10,978	12.54%	84,416	10,586
Total General Service		**86,855**	**10,978**		**84,416**	**10,586**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$86,855**	**$10,978**		**$84,416**	**$10,586**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($6,174)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.38%)
B. Actual employer payroll	104,801
C. Payment to transition liability/(surplus)	(398)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.39%)
B. Actual employer payroll	91,596
C. Payment to transition liability/(surplus)	(357)
4. Supplemental payment to transition liability	0
5. Interest	(390)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($5,809)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(5,809)	(6,174)
2. Combined valuation payroll	185,658	218,665
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.38%)**	**(0.31%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	185,658	218,665
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clackamas Community College/2908
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Clackamas Community College/2908

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clackamas Community College/2908

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas Community College -- #2908

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clackamas Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(9.86%)	(9.86%)	(9.86%)	(9.86%)	(9.86%)
Net pension contribution rate	**18.09%**	**18.09%**	**24.49%**	**12.06%**	**16.69%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.15%**	**18.15%**	**24.55%**	**12.06%**	**16.69%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$56,801,691	$60,100,192
Allocated pre-SLGRP pooled liability/(surplus)	4,238,959	4,365,142
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	4,486,889	4,799,438
Side account	24,402,563	23,838,318
Net unfunded pension actuarial accrued liability	41,124,976	45,426,454
Combined valuation payroll	29,775,406	27,877,421
Net pension UAL as a percentage of payroll	138%	163%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(9.86%)	(9.51%)
Allocated pooled RHIA UAL	($341,172)	($3,796)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	29,775,406	27,877,421
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$23,838,318**	**$23,838,318**
2. Deposits during 2017			
3. Administrative expenses		(1,000)	(1,000)
4. Amount transferred to employer reserves during 2017		(2,956,202)	(2,956,202)
5. Side account earnings during 2017		3,521,448	3,521,448
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$24,402,563**	**$24,402,563**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$12,897,769	$12,599,705
Side Account 2	11,504,795	11,238,613
Side Account 3	0	0
Total	**$24,402,563**	**$23,838,318**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$24,402,563	$23,838,318
2. Combined valuation payroll	29,775,406	27,877,421
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(9.86%)	(9.51%)

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clackamas County Fire District/2745
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Clackamas County Fire District/2745

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Clackamas County Fire District/2745

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas County Fire District -- #2745

October 2018

Secondary Employers

2164	Milwaukie Central Dispatch
2517	Clackamas Fire District #1
2523	Oak Lodge Fire Department
2537	Clackamas Fire Protection District #71
2546	Happy Valley Fire District
2548	Multnomah Rural Fire Protection District #12
2574	Clackamas County Rural Fire Protection District #54
2583	Beavercreek Fire District
2591	Clackamas County Rural Fire Protection District #68

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas County Fire District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas County Fire District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clackamas County Fire District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.50%	13.62%	21.12%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(0.32%)	(0.32%)	(0.32%)	(0.32%)	(0.32%)
Side account rate relief [2]	(3.52%)	(3.52%)	(3.52%)	(3.52%)	(3.52%)
Net pension contribution rate	**28.47%**	**21.59%**	**29.09%**	**16.37%**	**21.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.53%**	**21.65%**	**29.15%**	**16.37%**	**21.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas County Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$57,040,049	$59,818,036
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(789,003)	0
Allocated pooled OPSRP UAL	4,505,718	4,776,906
Side account	8,738,419	8,753,634
Net unfunded pension actuarial accrued liability	52,018,345	55,841,308
Combined valuation payroll	29,900,353	27,746,543
Net pension UAL as a percentage of payroll	174%	201%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(0.32%)	0.00%
Side account rate relief	(3.52%)	(3.51%)
Allocated pooled RHIA UAL	($342,604)	($3,778)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$225,783	$38,767	17.48%	$215,747	$37,713
Tier 2 General Service	12.64%	813,984	102,888	12.54%	723,475	90,724
Total General Service		**1,039,767**	**141,655**		**939,222**	**128,437**
Tier 1 Police & Fire	22.26%	5,622,971	1,251,673	22.14%	6,283,141	1,391,087
Tier 2 Police & Fire	20.05%	5,971,881	1,197,362	19.73%	5,718,111	1,128,183
Total Police & Fire		**11,594,852**	**2,449,035**		**12,001,252**	**2,519,270**
Total		**$12,634,619**	**$2,590,690**		**$12,940,474**	**$2,647,707**
Employer normal cost rate						
General Service			**13.62%**			**13.67%**
Police & Fire			**21.12%**			**20.99%**
Aggregate (Default)			**20.50%**			**20.46%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	(789,003)
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($789,003)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(789,003)	0
2. Combined valuation payroll	29,900,353	27,746,543
3. Regular amortization factor	8.312	0.000
4. **Total transition liability/(surplus) rate**	**(0.32%)**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$8,753,634**	**$8,753,634**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(1,284,026)	(1,284,026)
5. Side account earnings during 2017		1,269,311	1,269,311
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$8,738,419**	**$8,738,419**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$8,738,419	$8,753,634
Side Account 2	0	0
Side Account 3	0	0
Total	**$8,738,419**	**$8,753,634**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$8,738,419	$8,753,634
2. Combined valuation payroll	29,900,353	27,746,543
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(3.52%)	(3.51%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clackamas River Water/2761
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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October 2018
Clackamas River Water/2761

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas River Water -- #2761

October 2018

Secondary Employers

2634 Clairmont Water

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas River Water to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas River Water.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clackamas River Water

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.67%	13.67%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	2.85%	2.85%	2.85%	2.85%	2.85%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.65%**	**26.65%**	**33.81%**	**21.38%**	**26.01%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.71%**	**26.71%**	**33.87%**	**21.38%**	**26.01%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas River Water

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$5,743,019	$6,595,181
Allocated pre-SLGRP pooled liability/(surplus)	(420,340)	(462,815)
Transition liability/(surplus)	712,308	754,412
Allocated pooled OPSRP UAL	453,654	526,673
Side account	0	0
Net unfunded pension actuarial accrued liability	6,488,641	7,413,451
Combined valuation payroll	3,010,486	3,059,169
Net pension UAL as a percentage of payroll	216%	242%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	2.85%	2.74%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($34,495)	($417)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$353,593	$60,712	17.48%	$344,860	$60,282
Tier 2 General Service	12.64%	1,201,349	151,851	12.54%	1,299,573	162,966
Total General Service		**1,554,942**	**212,563**		**1,644,433**	**223,248**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,554,942**	**$212,563**		**$1,644,433**	**$223,248**
Employer normal cost rate						
General Service			**13.67%**			**13.58%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.67%**			**13.58%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$754,412
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	2.78%
B. Actual employer payroll	1,494,518
C. Payment to transition liability/(surplus)	41,548
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	3.15%
B. Actual employer payroll	1,536,455
C. Payment to transition liability/(surplus)	48,398
4. Supplemental payment to transition liability	0
5. Interest	47,842
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$712,308**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	712,308	754,412
2. Combined valuation payroll	3,010,486	3,059,169
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**2.85%**	**2.74%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,010,486	3,059,169
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clackamas Vector Control/2538
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Clackamas Vector Control/2538

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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October 2018
Clackamas Vector Control/2538

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clackamas Vector Control -- #2538

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clackamas Vector Control to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clackamas Vector Control.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clackamas Vector Control

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	3.17%	3.17%	3.17%	3.17%	3.17%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.13%**	**27.92%**	**34.13%**	**21.70%**	**26.33%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.19%**	**27.98%**	**34.19%**	**21.70%**	**26.33%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clackamas Vector Control

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$595,565	$774,978
Allocated pre-SLGRP pooled liability/(surplus)	(43,590)	(54,384)
Transition liability/(surplus)	82,227	92,800
Allocated pooled OPSRP UAL	47,045	61,888
Side account	0	0
Net unfunded pension actuarial accrued liability	681,247	875,282
Combined valuation payroll	312,195	359,473
Net pension UAL as a percentage of payroll	218%	243%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	3.17%	2.87%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,577)	($49)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$92,800
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	3.78%
B. Actual employer payroll	213,946
C. Payment to transition liability/(surplus)	8,087
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	5.49%
B. Actual employer payroll	145,875
C. Payment to transition liability/(surplus)	8,009
4. Supplemental payment to transition liability	0
5. Interest	5,523
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$82,227**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	82,227	92,800
2. Combined valuation payroll	312,195	359,473
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**3.17%**	**2.87%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	312,195	359,473
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clatskanie Library/2707
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clatskanie Library/2707

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie Library -- #2707

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie Library to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie Library.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clatskanie Library

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.82%	15.82%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.42%	0.42%	0.42%	0.42%	0.42%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.37%**	**26.37%**	**31.38%**	**18.95%**	**23.58%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.43%**	**26.43%**	**31.44%**	**18.95%**	**23.58%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie Library

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$185,976	$195,816
Allocated pre-SLGRP pooled liability/(surplus)	(13,612)	(13,741)
Transition liability/(surplus)	3,390	3,631
Allocated pooled OPSRP UAL	14,691	15,637
Side account	0	0
Net unfunded pension actuarial accrued liability	190,445	201,343
Combined valuation payroll	97,488	90,829
Net pension UAL as a percentage of payroll	195%	222%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.42%	0.44%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,117)	($12)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$51,629	$8,865	17.48%	$49,503	$8,653
Tier 2 General Service	12.64%	21,995	2,780	12.54%	20,181	2,531
Total General Service		**73,624**	**11,645**		**69,684**	**11,184**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$73,624**	**$11,645**		**$69,684**	**$11,184**
Employer normal cost rate						
General Service			**15.82%**			**16.05%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.82%**			**16.05%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$3,631
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.50%
B. Actual employer payroll	47,405
C. Payment to transition liability/(surplus)	237
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.49%
B. Actual employer payroll	47,413
C. Payment to transition liability/(surplus)	232
4. Supplemental payment to transition liability	0
5. Interest	228
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$3,390**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	3,390	3,631
2. Combined valuation payroll	97,488	90,829
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.42%**	**0.44%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	97,488	90,829
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clatskanie PUD/2526
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Clatskanie PUD/2526

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clatskanie PUD/2526

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie PUD -- #2526

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie PUD to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie PUD.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clatskanie PUD

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.88%	14.88%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	5.34%	5.34%	5.34%	5.34%	5.34%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**30.35%**	**30.35%**	**36.30%**	**23.87%**	**28.50%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.41%**	**30.41%**	**36.36%**	**23.87%**	**28.50%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie PUD

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$7,178,070	$7,389,558
Allocated pre-SLGRP pooled liability/(surplus)	(525,374)	(518,560)
Transition liability/(surplus)	1,671,074	1,767,782
Allocated pooled OPSRP UAL	567,011	590,110
Side account	0	0
Net unfunded pension actuarial accrued liability	8,890,781	9,228,890
Combined valuation payroll	3,762,739	3,427,640
Net pension UAL as a percentage of payroll	236%	269%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	5.34%	5.73%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($43,114)	($467)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$397,123	$68,186	17.48%	$385,641	$67,410
Tier 2 General Service	12.64%	404,684	51,152	12.54%	496,438	62,253
Total General Service		**801,807**	**119,338**		**882,079**	**129,663**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$801,807**	**$119,338**		**$882,079**	**$129,663**
Employer normal cost rate						
General Service			**14.88%**			**14.70%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.88%**			**14.70%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$1,767,782
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	5.94%
B. Actual employer payroll	1,813,177
C. Payment to transition liability/(surplus)	107,703
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	5.71%
B. Actual employer payroll	1,773,050
C. Payment to transition liability/(surplus)	101,241
4. Supplemental payment to transition liability	0
5. Interest	112,236
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,671,074**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	1,671,074	1,767,782
2. Combined valuation payroll	3,762,739	3,427,640
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**5.34%**	**5.73%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,762,739	3,427,640
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clatskanie Rural Fire Protection District/2588
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Clatskanie Rural Fire Protection District/2588

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatskanie Rural Fire Protection District -- #2588

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clatskanie Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatskanie Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clatskanie Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	21.41%	14.62%	21.41%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(4.20%)	(4.20%)	(4.20%)	(4.20%)	(4.20%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.02%**	**22.23%**	**29.02%**	**16.01%**	**20.64%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.08%**	**22.29%**	**29.08%**	**16.01%**	**20.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatskanie Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$1,903,731	$2,034,282
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(348,224)	(389,732)
Allocated pooled OPSRP UAL	150,380	162,452
Side account	0	0
Net unfunded pension actuarial accrued liability	1,705,887	1,807,002
Combined valuation payroll	997,934	943,600
Net pension UAL as a percentage of payroll	171%	192%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(4.20%)	(4.59%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($11,435)	($128)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	199,493	44,407	22.14%	202,168	44,760
Tier 2 Police & Fire	20.05%	125,295	25,122	19.73%	129,018	25,455
Total Police & Fire		**324,788**	**69,529**		**331,186**	**70,215**
Total		**$324,788**	**$69,529**		**$331,186**	**$70,215**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**21.41%**			**21.20%**
Aggregate (Default)			**21.41%**			**21.20%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($389,732)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.99%)
B. Actual employer payroll	457,940
C. Payment to transition liability/(surplus)	(36,589)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.46%)
B. Actual employer payroll	518,426
C. Payment to transition liability/(surplus)	(28,307)
4. Supplemental payment to transition liability	0
5. Interest	(23,388)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($348,224)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(348,224)	(389,732)
2. Combined valuation payroll	997,934	943,600
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(4.20%)**	**(4.59%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	997,934	943,600
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clatsop Community College/2900
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Clatsop Community College/2900

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clatsop Community College/2900

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatsop Community College -- #2900

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clatsop Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatsop Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clatsop Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(12.84%)	(12.84%)	(12.84%)	(12.84%)	(12.84%)
Net pension contribution rate	**15.11%**	**15.11%**	**21.51%**	**9.08%**	**13.71%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.17%**	**15.17%**	**21.57%**	**9.08%**	**13.71%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatsop Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$11,177,305	$11,774,016
Allocated pre-SLGRP pooled liability/(surplus)	834,133	855,160
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	882,920	940,241
Side account	6,252,615	5,977,376
Net unfunded pension actuarial accrued liability	6,641,743	7,592,041
Combined valuation payroll	5,859,136	5,461,367
Net pension UAL as a percentage of payroll	113%	139%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(12.84%)	(12.17%)
Allocated pooled RHIA UAL	($67,135)	($744)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	5,859,136	5,461,367
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$5,977,376**	**$5,977,376**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(610,367)	(610,367)
5. Side account earnings during 2017		886,106	886,106
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$6,252,615**	**$6,252,615**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$6,252,615	$5,977,376
Side Account 2	0	0
Side Account 3	0	0
Total	**$6,252,615**	**$5,977,376**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$6,252,615	$5,977,376
2. Combined valuation payroll	5,859,136	5,461,367
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(12.84%)	(12.17%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clatsop County/2036
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clatsop County/2036

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clatsop County -- #2036

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clatsop County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clatsop County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clatsop County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.92%	15.03%	20.73%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(6.43%)	(6.43%)	(6.43%)	(6.43%)	(6.43%)
Net pension contribution rate	**20.62%**	**18.73%**	**24.43%**	**12.10%**	**16.73%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.68%**	**18.79%**	**24.49%**	**12.10%**	**16.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clatsop County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$25,796,135	$27,980,398
Allocated pre-SLGRP pooled liability/(surplus)	(1,888,058)	(1,963,517)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	2,037,693	2,234,438
Side account	7,230,970	6,999,020
Net unfunded pension actuarial accrued liability	18,714,800	21,252,299
Combined valuation payroll	13,522,316	12,978,683
Net pension UAL as a percentage of payroll	138%	164%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	(6.43%)	(6.00%)
Allocated pooled RHIA UAL	($154,941)	($1,767)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,805,813	$310,058	17.48%	$1,963,949	$343,298
Tier 2 General Service	12.64%	1,618,333	204,557	12.54%	1,579,534	198,074
Total General Service		**3,424,146**	**514,615**		**3,543,483**	**541,372**
Tier 1 Police & Fire	22.26%	522,483	116,305	22.14%	575,882	127,500
Tier 2 Police & Fire	20.05%	1,184,541	237,500	19.73%	1,068,902	210,894
Total Police & Fire		**1,707,024**	**353,805**		**1,644,784**	**338,394**
Total		**$5,131,170**	**$868,420**		**$5,188,267**	**$879,766**
Employer normal cost rate						
General Service			**15.03%**			**15.28%**
Police & Fire			**20.73%**			**20.57%**
Aggregate (Default)			**16.92%**			**16.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	13,522,316	12,978,683
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$6,999,020**	**$6,999,020**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(802,269)	(802,269)
5. Side account earnings during 2017		1,034,720	1,034,720
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$7,230,970**	**$7,230,970**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$7,230,970	$6,999,020
Side Account 2	0	0
Side Account 3	0	0
Total	**$7,230,970**	**$6,999,020**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$7,230,970	$6,999,020
2. Combined valuation payroll	13,522,316	12,978,683
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	(6.43%)	(6.00%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Clean Water Services/2617
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Clean Water Services/2617

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Clean Water Services/2617

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau
Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Clean Water Services -- #2617

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Clean Water Services to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Clean Water Services.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Clean Water Services

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.07%	15.07%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.20%)	(1.20%)	(1.20%)	(1.20%)	(1.20%)
Side account rate relief [2]	(5.34%)	(5.34%)	(5.34%)	(5.34%)	(5.34%)
Net pension contribution rate	**20.34%**	**20.34%**	**26.10%**	**13.67%**	**18.30%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.40%**	**20.40%**	**26.16%**	**13.67%**	**18.30%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Clean Water Services

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$56,732,722	$63,504,416
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(2,960,342)	(3,151,222)
Allocated pooled OPSRP UAL	4,481,441	5,071,290
Side account	13,205,061	12,906,910
Net unfunded pension actuarial accrued liability	45,048,760	52,517,574
Combined valuation payroll	29,739,253	29,456,467
Net pension UAL as a percentage of payroll	151%	178%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.20%)	(1.19%)
Side account rate relief	(5.34%)	(4.87%)
Allocated pooled RHIA UAL	($340,758)	($4,011)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$6,914,499	$1,187,219	17.48%	$7,869,729	$1,375,629
Tier 2 General Service	12.64%	5,973,962	755,109	12.54%	5,848,120	733,354
Total General Service		**12,888,461**	**1,942,328**		**13,717,849**	**2,108,983**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$12,888,461**	**$1,942,328**		**$13,717,849**	**$2,108,983**
Employer normal cost rate						
General Service			**15.07%**			**15.37%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.07%**			**15.37%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($3,151,222)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.33%)
B. Actual employer payroll	14,076,317
C. Payment to transition liability/(surplus)	(187,215)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.26%)
B. Actual employer payroll	16,070,936
C. Payment to transition liability/(surplus)	(202,494)
4. Supplemental payment to transition liability	0
5. Interest	(198,829)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,960,342)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,960,342)	(3,151,222)
2. Combined valuation payroll	29,739,253	29,456,467
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.20%)**	**(1.19%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$12,906,910**	**$12,906,910**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(1,598,547)	(1,598,547)
5. Side account earnings during 2017		1,897,197	1,897,197
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$13,205,061**	**$13,205,061**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$13,205,061	$12,906,910
Side Account 2	0	0
Side Account 3	0	0
Total	**$13,205,061**	**$12,906,910**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$13,205,061	$12,906,910
2. Combined valuation payroll	29,739,253	29,456,467
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(5.34%)	(4.87%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Cloverdale Rural Fire Protection District/2681
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Cloverdale Rural Fire Protection District/2681

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Cloverdale Rural Fire Protection District -- #2681

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Cloverdale Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Cloverdale Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Cloverdale Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.26%	14.62%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	3.01%	3.01%	3.01%	3.01%	3.01%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**35.40%**	**27.76%**	**35.40%**	**21.54%**	**26.17%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**35.46%**	**27.82%**	**35.46%**	**21.54%**	**26.17%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Cloverdale Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$280,639	$390,862
Allocated pre-SLGRP pooled liability/(surplus)	(20,540)	(27,429)
Transition liability/(surplus)	36,788	39,413
Allocated pooled OPSRP UAL	22,168	31,213
Side account	0	0
Net unfunded pension actuarial accrued liability	319,055	434,059
Combined valuation payroll	147,111	181,301
Net pension UAL as a percentage of payroll	217%	239%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	3.01%	2.42%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,686)	($25)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	89,991	20,032	22.14%	87,394	19,349
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**89,991**	**20,032**		**87,394**	**19,349**
Total		**$89,991**	**$20,032**		**$87,394**	**$19,349**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**22.26%**			**22.14%**
Aggregate (Default)			**22.26%**			**22.14%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$39,413
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	3.93%
B. Actual employer payroll	69,840
C. Payment to transition liability/(surplus)	2,745
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	3.30%
B. Actual employer payroll	71,238
C. Payment to transition liability/(surplus)	2,351
4. Supplemental payment to transition liability	0
5. Interest	2,471
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$36,788**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	36,788	39,413
2. Combined valuation payroll	147,111	181,301
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**3.01%**	**2.42%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	147,111	181,301
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Coburg Rural Fire Protection District/2801
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”) as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Coburg Rural Fire Protection District/2801

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Coburg Rural Fire Protection District/2801

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coburg Rural Fire Protection District -- #2801

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Coburg Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coburg Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Coburg Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.01%	17.17%	20.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.68%)	(5.68%)	(5.68%)	(5.68%)	(5.68%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**26.14%**	**23.30%**	**26.39%**	**14.53%**	**19.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**26.20%**	**23.36%**	**26.45%**	**14.53%**	**19.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coburg Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$280,740	$291,675
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(69,469)	(79,386)
Allocated pooled OPSRP UAL	22,176	23,292
Side account	0	0
Net unfunded pension actuarial accrued liability	233,447	235,581
Combined valuation payroll	147,163	135,293
Net pension UAL as a percentage of payroll	159%	174%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.68%)	(6.52%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,686)	($18)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$11,333	$1,946	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**11,333**	**1,946**		**0**	**0**
Tier 1 Police & Fire	22.26%	12,479	2,778	22.14%	8,112	1,796
Tier 2 Police & Fire	20.05%	117,123	23,483	19.73%	79,594	15,704
Total Police & Fire		**129,602**	**26,261**		**87,706**	**17,500**
Total		**$140,935**	**$28,207**		**$87,706**	**$17,500**
Employer normal cost rate						
General Service			**17.17%**			**14.84%**
Police & Fire			**20.26%**			**19.95%**
Aggregate (Default)			**20.01%**			**19.95%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($79,386)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(7.01%)
B. Actual employer payroll	68,244
C. Payment to transition liability/(surplus)	(4,784)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.50%)
B. Actual employer payroll	150,746
C. Payment to transition liability/(surplus)	(9,799)
4. Supplemental payment to transition liability	0
5. Interest	(4,666)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($69,469)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(69,469)	(79,386)
2. Combined valuation payroll	147,163	135,293
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.68%)**	**(6.52%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	147,163	135,293
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Colton Fire Department/2649
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Colton Fire Department/2649

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Colton Fire Department -- #2649

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Colton Fire Department to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Colton Fire Department.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Colton Fire Department

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	22.26%	14.62%	22.26%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(14.16%)	(14.16%)	(14.16%)	(14.16%)	(14.16%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**19.91%**	**12.27%**	**19.91%**	**6.05%**	**10.68%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.97%**	**12.33%**	**19.97%**	**6.05%**	**10.68%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Colton Fire Department

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$83,542	$69,878
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(51,547)	(50,498)
Allocated pooled OPSRP UAL	6,599	5,580
Side account	0	0
Net unfunded pension actuarial accrued liability	38,594	24,960
Combined valuation payroll	43,792	32,413
Net pension UAL as a percentage of payroll	88%	77%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(14.16%)	(17.32%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($502)	($4)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	30,504	6,790	22.14%	32,413	7,176
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**30,504**	**6,790**		**32,413**	**7,176**
Total		**$30,504**	**$6,790**		**$32,413**	**$7,176**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**22.26%**			**22.14%**
Aggregate (Default)			**22.26%**			**22.14%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($50,498)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.34%)
B. Actual employer payroll	13,333
C. Payment to transition liability/(surplus)	(845)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.94%)
B. Actual employer payroll	26,384
C. Payment to transition liability/(surplus)	(1,568)
4. Supplemental payment to transition liability	0
5. Interest	(3,462)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($51,547)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(51,547)	(50,498)
2. Combined valuation payroll	43,792	32,413
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(14.16%)**	**(17.32%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	43,792	32,413
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Columbia 911 Communications District/2671
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Columbia 911 Communications District/2671

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Columbia 911 Communications District/2671

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia 911 Communications District -- #2671

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia 911 Communications District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia 911 Communications District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Columbia 911 Communications District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	13.47%	13.47%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.02%)	(1.02%)	(1.02%)	(1.02%)	(1.02%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.58%**	**22.58%**	**29.94%**	**17.51%**	**22.14%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.64%**	**22.64%**	**30.00%**	**17.51%**	**22.14%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia 911 Communications District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$2,270,342	$2,718,328
Allocated pre-SLGRP pooled liability/(surplus)	(166,170)	(190,758)
Transition liability/(surplus)	(100,897)	(104,567)
Allocated pooled OPSRP UAL	179,339	217,078
Side account	0	0
Net unfunded pension actuarial accrued liability	2,182,614	2,640,081
Combined valuation payroll	1,190,112	1,260,894
Net pension UAL as a percentage of payroll	183%	209%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.02%)	(0.92%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($13,637)	($172)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$103,222	$17,723	17.48%	$210,106	$36,727
Tier 2 General Service	12.64%	463,042	58,529	12.54%	468,588	58,761
Total General Service		**566,264**	**76,252**		**678,694**	**95,488**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$566,264**	**$76,252**		**$678,694**	**$95,488**
Employer normal cost rate						
General Service			**13.47%**			**14.07%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**13.47%**			**14.07%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($104,567)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.84%)
B. Actual employer payroll	606,587
C. Payment to transition liability/(surplus)	(5,095)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.89%)
B. Actual employer payroll	601,326
C. Payment to transition liability/(surplus)	(5,352)
4. Supplemental payment to transition liability	0
5. Interest	(6,777)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($100,897)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(100,897)	(104,567)
2. Combined valuation payroll	1,190,112	1,260,894
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.02%)**	**(0.92%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,190,112	1,260,894
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Columbia County/2017
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Columbia County/2017

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Columbia County/2017

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia County -- #2017

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Columbia County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.33%	14.99%	20.50%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(3.96%)	(3.96%)	(3.96%)	(3.96%)	(3.96%)
Side account rate relief [2]	(3.50%)	(3.50%)	(3.50%)	(3.50%)	(3.50%)
Net pension contribution rate	**20.68%**	**19.34%**	**24.85%**	**12.75%**	**17.38%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.74%**	**19.40%**	**24.91%**	**12.75%**	**17.38%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$19,573,604	$20,541,652
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(3,374,826)	(3,629,831)
Allocated pooled OPSRP UAL	1,546,162	1,640,400
Side account	2,981,812	2,945,740
Net unfunded pension actuarial accrued liability	14,763,128	15,606,481
Combined valuation payroll	10,260,469	9,528,227
Net pension UAL as a percentage of payroll	144%	164%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(3.96%)	(4.24%)
Side account rate relief	(3.50%)	(3.44%)
Allocated pooled RHIA UAL	($117,566)	($1,297)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$1,615,870	$277,445	17.48%	$1,574,531	$275,228
Tier 2 General Service	12.64%	1,503,734	190,072	12.54%	1,420,655	178,150
Total General Service		**3,119,604**	**467,517**		**2,995,186**	**453,378**
Tier 1 Police & Fire	22.26%	203,871	45,382	22.14%	311,175	68,894
Tier 2 Police & Fire	20.05%	799,009	160,201	19.73%	750,715	148,116
Total Police & Fire		**1,002,880**	**205,583**		**1,061,890**	**217,010**
Total		**$4,122,484**	**$673,100**		**$4,057,076**	**$670,388**
Employer normal cost rate						
General Service			**14.99%**			**15.14%**
Police & Fire			**20.50%**			**20.44%**
Aggregate (Default)			**16.33%**			**16.52%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($3,629,831)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(4.46%)
B. Actual employer payroll	5,028,448
C. Payment to transition liability/(surplus)	(224,269)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(4.72%)
B. Actual employer payroll	5,453,451
C. Payment to transition liability/(surplus)	(257,403)
4. Supplemental payment to transition liability	0
5. Interest	(226,667)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($3,374,826)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(3,374,826)	(3,629,831)
2. Combined valuation payroll	10,260,469	9,528,227
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(3.96%)**	**(4.24%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$2,945,740**	**$2,945,740**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(395,053)	(395,053)
5. Side account earnings during 2017		431,626	431,626
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$2,981,812**	**$2,981,812**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$2,981,812	$2,945,740
Side Account 2	0	0
Side Account 3	0	0
Total	**$2,981,812**	**$2,945,740**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$2,981,812	$2,945,740
2. Combined valuation payroll	10,260,469	9,528,227
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(3.50%)	(3.44%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Columbia Drainage Vector Control District/2687
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Columbia Drainage Vector Control District/2687

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Columbia Drainage Vector Control District/2687

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
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Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia Drainage Vector Control District -- #2687

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia Drainage Vector Control District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia Drainage Vector Control District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Columbia Drainage Vector Control District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	12.87%	12.87%	12.87%	12.87%	12.87%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**35.64%**	**35.64%**	**43.83%**	**31.40%**	**36.03%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**35.70%**	**35.70%**	**43.89%**	**31.40%**	**36.03%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia Drainage Vector Control District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$294,151	$305,545
Allocated pre-SLGRP pooled liability/(surplus)	(21,529)	(21,442)
Transition liability/(surplus)	164,959	172,027
Allocated pooled OPSRP UAL	23,236	24,400
Side account	0	0
Net unfunded pension actuarial accrued liability	460,817	480,530
Combined valuation payroll	154,194	141,727
Net pension UAL as a percentage of payroll	299%	339%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	12.87%	13.50%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,767)	($19)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	75,821	9,584	12.54%	72,179	9,051
Total General Service		**75,821**	**9,584**		**72,179**	**9,051**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$75,821**	**$9,584**		**$72,179**	**$9,051**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$172,027
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	9.94%
B. Actual employer payroll	76,052
C. Payment to transition liability/(surplus)	7,560
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	13.45%
B. Actual employer payroll	78,714
C. Payment to transition liability/(surplus)	10,587
4. Supplemental payment to transition liability	0
5. Interest	11,079
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$164,959**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	164,959	172,027
2. Combined valuation payroll	154,194	141,727
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**12.87%**	**13.50%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	154,194	141,727
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Columbia Gorge Community College/2996
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Columbia Gorge Community College/2996

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia Gorge Community College -- #2996

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia Gorge Community College to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia Gorge Community College.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Columbia Gorge Community College

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	1.71%	1.71%	1.71%	1.71%	1.71%
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	(8.59%)	(8.59%)	(8.59%)	(8.59%)	(8.59%)
Net pension contribution rate	**19.36%**	**19.36%**	**25.76%**	**13.33%**	**17.96%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.42%**	**19.42%**	**25.82%**	**13.33%**	**17.96%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia Gorge Community College

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,907,524	$10,197,391
Allocated pre-SLGRP pooled liability/(surplus)	664,745	740,648
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	703,625	814,336
Side account	3,335,171	3,171,653
Net unfunded pension actuarial accrued liability	6,940,723	8,580,722
Combined valuation payroll	4,669,318	4,730,051
Net pension UAL as a percentage of payroll	149%	181%
Pre-SLGRP pooled rate	1.71%	1.74%
Transition rate	0.00%	0.00%
Side account rate relief	(8.59%)	(7.46%)
Allocated pooled RHIA UAL	($53,502)	($644)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$66,219,389	$11,369,869	17.48%	$75,360,418	$13,173,001
Tier 2 General Service	12.64%	101,527,904	12,833,127	12.54%	105,835,897	13,271,821
Total General Service		**167,747,293**	**24,202,996**		**181,196,315**	**26,444,822**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$167,747,293**	**$24,202,996**		**$181,196,315**	**$26,444,822**
Employer normal cost rate						
General Service			**14.43%**			**14.59%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.59%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	4,669,318	4,730,051
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**	**$3,171,653**	**$3,171,653**
2. Deposits during 2017			
3. Administrative expenses		(500)	(500)
4. Amount transferred to employer reserves during 2017		(309,981)	(309,981)
5. Side account earnings during 2017		473,998	473,998
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***		**$3,335,171**	**$3,335,171**

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	$3,335,171	$3,171,653
Side Account 2	0	0
Side Account 3	0	0
Total	**$3,335,171**	**$3,171,653**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$3,335,171	$3,171,653
2. Combined valuation payroll	4,669,318	4,730,051
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	(8.59%)	(7.46%)

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Columbia River Fire & Rescue/2528
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Columbia River Fire & Rescue/2528

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Columbia River Fire & Rescue/2528

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Columbia River Fire & Rescue -- #2528

October 2018

Secondary Employers

2577 Rainier Fire Department

CONTENTS

Executive Summary

Milliman has prepared this report for Columbia River Fire & Rescue to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Columbia River Fire & Rescue.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Columbia River Fire & Rescue

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.43%	12.64%	20.72%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(6.29%)	(6.29%)	(6.29%)	(6.29%)	(6.29%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.27%**	**16.48%**	**24.56%**	**12.24%**	**16.87%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.33%**	**16.54%**	**24.62%**	**12.24%**	**16.87%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Columbia River Fire & Rescue

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$8,533,336	$8,859,730
Allocated pre-SLGRP pooled liability/(surplus)	(624,568)	(621,729)
Transition liability/(surplus)	(2,337,248)	(2,470,642)
Allocated pooled OPSRP UAL	674,067	707,514
Side account	0	0
Net unfunded pension actuarial accrued liability	6,245,587	6,474,873
Combined valuation payroll	4,473,168	4,109,578
Net pension UAL as a percentage of payroll	140%	158%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(6.29%)	(6.68%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($51,254)	($560)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	84,381	10,666	12.54%	80,949	10,151
Total General Service		**84,381**	**10,666**		**80,949**	**10,151**
Tier 1 Police & Fire	22.26%	693,691	154,416	22.14%	757,664	167,747
Tier 2 Police & Fire	20.05%	1,590,538	318,903	19.73%	1,382,304	272,729
Total Police & Fire		**2,284,229**	**473,319**		**2,139,968**	**440,476**
Total		**$2,368,610**	**$483,985**		**$2,220,917**	**$450,627**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.72%**			**20.58%**
Aggregate (Default)			**20.43%**			**20.29%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($2,470,642)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(6.42%)
B. Actual employer payroll	2,016,414
C. Payment to transition liability/(surplus)	(129,454)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(6.67%)
B. Actual employer payroll	2,412,586
C. Payment to transition liability/(surplus)	(160,919)
4. Supplemental payment to transition liability	0
5. Interest	(156,979)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($2,337,248)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(2,337,248)	(2,470,642)
2. Combined valuation payroll	4,473,168	4,109,578
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(6.29%)**	**(6.68%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	4,473,168	4,109,578
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Community Services Consortium/2612
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Community Services Consortium/2612

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Community Services Consortium -- #2612

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Community Services Consortium to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Community Services Consortium.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Community Services Consortium

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.13%	14.13%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.77%)	(1.77%)	(1.77%)	(1.77%)	(1.77%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.49%**	**22.49%**	**29.19%**	**16.76%**	**21.39%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.55%**	**22.55%**	**29.25%**	**16.76%**	**21.39%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Community Services Consortium

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$7,493,000	$8,513,788
Allocated pre-SLGRP pooled liability/(surplus)	(548,424)	(597,453)
Transition liability/(surplus)	(576,849)	(605,158)
Allocated pooled OPSRP UAL	591,888	679,888
Side account	0	0
Net unfunded pension actuarial accrued liability	6,959,615	7,991,065
Combined valuation payroll	3,927,825	3,949,113
Net pension UAL as a percentage of payroll	177%	202%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.77%)	(1.70%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($45,006)	($538)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$438,524	$75,295	17.48%	$425,397	$74,359
Tier 2 General Service	12.64%	897,734	113,474	12.54%	946,951	118,748
Total General Service		**1,336,258**	**188,769**		**1,372,348**	**193,107**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,336,258**	**$188,769**		**$1,372,348**	**$193,107**
Employer normal cost rate						
General Service			**14.13%**			**14.07%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.13%**			**14.07%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($605,158)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.45%)
B. Actual employer payroll	2,116,419
C. Payment to transition liability/(surplus)	(30,688)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.76%)
B. Actual employer payroll	2,066,170
C. Payment to transition liability/(surplus)	(36,365)
4. Supplemental payment to transition liability	0
5. Interest	(38,744)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($576,849)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(576,849)	(605,158)
2. Combined valuation payroll	3,927,825	3,949,113
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.77%)**	**(1.70%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,927,825	3,949,113
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Coos County Airport District/2860
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Coos County Airport District/2860

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coos County Airport District -- #2860

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Coos County Airport District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coos County Airport District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Coos County Airport District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(5.60%)	(5.60%)	(5.60%)	(5.60%)	(5.60%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**18.85%**	**18.85%**	**27.04%**	**14.61%**	**19.24%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.91%**	**18.91%**	**27.10%**	**14.61%**	**19.24%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coos County Airport District

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$1,380,821	$1,412,793
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(336,962)	(353,829)
Allocated pooled OPSRP UAL	109,074	112,822
Side account	0	0
Net unfunded pension actuarial accrued liability	1,152,933	1,171,786
Combined valuation payroll	723,825	655,323
Net pension UAL as a percentage of payroll	159%	179%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(5.60%)	(6.00%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($8,294)	($89)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) **RHIA**	**Actuarial Valuation as of** **December 31, 2017**	 **December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) **RHIPA**	**Actuarial Valuation as of** **December 31, 2017**	 **December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	150,526	19,026	12.54%	145,732	18,275
Total General Service		**150,526**	**19,026**		**145,732**	**18,275**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$150,526**	**$19,026**		**$145,732**	**$18,275**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($353,829)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(5.83%)
B. Actual employer payroll	349,414
C. Payment to transition liability/(surplus)	(20,371)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(5.51%)
B. Actual employer payroll	347,165
C. Payment to transition liability/(surplus)	(19,128)
4. Supplemental payment to transition liability	0
5. Interest	(22,632)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($336,962)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(336,962)	(353,829)
2. Combined valuation payroll	723,825	655,323
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(5.60%)**	**(6.00%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	723,825	655,323
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Coos County/2018
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Coos County/2018

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Coos County -- #2018

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Coos County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Coos County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Coos County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	16.58%	14.69%	20.98%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	0.89%	0.89%	0.89%	0.89%	0.89%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**29.28%**	**27.39%**	**33.68%**	**21.10%**	**25.73%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**29.34%**	**27.45%**	**33.74%**	**21.10%**	**25.73%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Coos County

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Allocated pooled SLGRP T1/T2 UAL	$29,172,943	$32,487,064
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	1,133,609	1,209,718
Allocated pooled OPSRP UAL	2,304,434	2,594,329
Side account	0	0
Net unfunded pension actuarial accrued liability	32,610,986	36,291,111
Combined valuation payroll	15,292,436	15,069,096
Net pension UAL as a percentage of payroll	213%	241%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	0.89%	0.89%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($175,224)	($2,052)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$2,077,369	$356,684	17.48%	$2,550,304	$445,793
Tier 2 General Service	12.64%	2,518,722	318,366	12.54%	2,450,737	307,322
Total General Service		**4,596,091**	**675,050**		**5,001,041**	**753,115**
Tier 1 Police & Fire	22.26%	832,132	185,233	22.14%	890,742	197,210
Tier 2 Police & Fire	20.05%	1,137,120	227,993	19.73%	1,230,522	242,782
Total Police & Fire		**1,969,252**	**413,226**		**2,121,264**	**439,992**
Total		**$6,565,343**	**$1,088,276**		**$7,122,305**	**$1,193,107**
Employer normal cost rate						
General Service			**14.69%**			**15.06%**
Police & Fire			**20.98%**			**20.74%**
Aggregate (Default)			**16.58%**			**16.75%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$1,209,718
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	1.01%
B. Actual employer payroll	7,703,273
C. Payment to transition liability/(surplus)	77,803
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.92%
B. Actual employer payroll	8,091,798
C. Payment to transition liability/(surplus)	74,444
4. Supplemental payment to transition liability	0
5. Interest	76,138
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$1,133,609**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	1,133,609	1,209,718
2. Combined valuation payroll	15,292,436	15,069,096
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**0.89%**	**0.89%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	15,292,436	15,069,096
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Corbett Water District/2603
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Corbett Water District/2603

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Corbett Water District -- #2603

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Corbett Water District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Corbett Water District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Corbett Water District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	0.00%	0.00%	0.00%	0.00%	0.00%
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**22.77%**	**22.77%**	**30.96%**	**18.53%**	**23.16%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.83%**	**22.83%**	**31.02%**	**18.53%**	**23.16%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Corbett Water District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$533,933	$421,930
Allocated pre-SLGRP pooled liability/(surplus)	(39,079)	(29,609)
Transition liability/(surplus)	0	0
Allocated pooled OPSRP UAL	42,177	33,694
Side account	0	0
Net unfunded pension actuarial accrued liability	537,031	426,015
Combined valuation payroll	279,887	195,712
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	0.00%	0.00%
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,207)	($27)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	53,482	6,760	12.54%	0	0
Total General Service		**53,482**	**6,760**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$53,482**	**$6,760**		**$0**	**$0**
Employer normal cost rate						
General Service			**12.64%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	$0
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	0.00%
B. Actual employer payroll	0
C. Payment to transition liability/(surplus)	0
4. Supplemental payment to transition liability	0
5. Interest	0
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**$0**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	0	0
2. Combined valuation payroll	279,887	195,712
3. Regular amortization factor	0.000	0.000
4. **Total transition liability/(surplus) rate**	**0.00%**	**0.00%**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	279,887	195,712
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Council of Governments/2545
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Council of Governments/2545

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Council of Governments/2545

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Council of Governments -- #2545

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Council of Governments to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Council of Governments.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Council of Governments

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	14.43%	14.43%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.01%)	(0.01%)	(0.01%)	(0.01%)	(0.01%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.55%**	**24.55%**	**30.95%**	**18.52%**	**23.15%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.61%**	**24.61%**	**31.01%**	**18.52%**	**23.15%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

[2] *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Council of Governments

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$12,346,326	$14,956,946
Allocated pre-SLGRP pooled liability/(surplus)	(903,646)	(1,049,600)
Transition liability/(surplus)	(7,324)	(7,515)
Allocated pooled OPSRP UAL	975,263	1,194,421
Side account	0	0
Net unfunded pension actuarial accrued liability	12,410,619	15,094,252
Combined valuation payroll	6,471,936	6,937,766
Net pension UAL as a percentage of payroll	192%	218%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.01%)	(0.01%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($74,157)	($945)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$424,982	$72,969	17.48%	$706,112	$123,428
Tier 2 General Service	12.64%	650,063	82,168	12.54%	848,534	106,406
Total General Service		**1,075,045**	**155,137**		**1,554,646**	**229,834**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$1,075,045**	**$155,137**		**$1,554,646**	**$229,834**
Employer normal cost rate						
General Service			**14.43%**			**14.78%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**14.43%**			**14.78%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($7,515)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.01%)
B. Actual employer payroll	3,406,714
C. Payment to transition liability/(surplus)	(341)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.01%)
B. Actual employer payroll	3,422,439
C. Payment to transition liability/(surplus)	(342)
4. Supplemental payment to transition liability	0
5. Interest	(492)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($7,324)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(7,324)	(7,515)
2. Combined valuation payroll	6,471,936	6,937,766
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.01%)**	**(0.01%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	6,471,936	6,937,766
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Crescent Rural Fire Protection District/2834
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Crescent Rural Fire Protection District/2834

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crescent Rural Fire Protection District -- #2834

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Crescent Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crescent Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Crescent Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(2.84%)	(2.84%)	(2.84%)	(2.84%)	(2.84%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.80%**	**23.59%**	**29.80%**	**17.37%**	**22.00%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.86%**	**23.65%**	**29.86%**	**17.37%**	**22.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crescent Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$238,520	$406,647
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(29,499)	(31,284)
Allocated pooled OPSRP UAL	18,841	32,474
Side account	0	0
Net unfunded pension actuarial accrued liability	227,862	407,837
Combined valuation payroll	125,032	188,623
Net pension UAL as a percentage of payroll	182%	216%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(2.84%)	(1.84%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,433)	($26)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer’s Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($31,284)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.29%)
B. Actual employer payroll	95,272
C. Payment to transition liability/(surplus)	(1,229)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(2.71%)
B. Actual employer payroll	93,611
C. Payment to transition liability/(surplus)	(2,537)
4. Supplemental payment to transition liability	0
5. Interest	(1,981)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($29,499)**

[1] Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(29,499)	(31,284)
2. Combined valuation payroll	125,032	188,623
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(2.84%)**	**(1.84%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	125,032	188,623
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Crook County Rural Fire Protection District #1/2844
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Crook County Rural Fire Protection District #1/2844

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crook County Rural Fire Protection District #1 -- #2844

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Crook County Rural Fire Protection District #1 to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crook County Rural Fire Protection District #1.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Crook County Rural Fire Protection District #1

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	18.59%	12.64%	20.05%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(0.19%)	(0.19%)	(0.19%)	(0.19%)	(0.19%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**28.53%**	**22.58%**	**29.99%**	**18.34%**	**22.97%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**28.59%**	**22.64%**	**30.05%**	**18.34%**	**22.97%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crook County Rural Fire Protection District #1

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,747,274	$3,691,427
Allocated pre-SLGRP pooled liability/(surplus)	(274,269)	(259,045)
Transition liability/(surplus)	(30,446)	(33,588)
Allocated pooled OPSRP UAL	296,005	294,787
Side account	0	0
Net unfunded pension actuarial accrued liability	3,738,564	3,693,581
Combined valuation payroll	1,964,318	1,712,265
Net pension UAL as a percentage of payroll	190%	216%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(0.19%)	(0.22%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($22,508)	($233)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	82,743	10,459	12.54%	79,946	10,025
Total General Service		**82,743**	**10,459**		**79,946**	**10,025**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	337,501	67,669	19.73%	240,964	47,542
Total Police & Fire		**337,501**	**67,669**		**240,964**	**47,542**
Total		**$420,244**	**$78,128**		**$320,910**	**$57,567**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.05%**			**19.73%**
Aggregate (Default)			**18.59%**			**17.94%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($33,588)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(0.35%)
B. Actual employer payroll	862,374
C. Payment to transition liability/(surplus)	(3,018)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(0.23%)
B. Actual employer payroll	942,975
C. Payment to transition liability/(surplus)	(2,169)
4. Supplemental payment to transition liability	0
5. Interest	(2,045)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($30,446)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(30,446)	(33,588)
2. Combined valuation payroll	1,964,318	1,712,265
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(0.19%)**	**(0.22%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,964,318	1,712,265
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Crook County/2044
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Crook County/2044

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Crook County/2044

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crook County -- #2044

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Crook County to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crook County.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Crook County

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	20.94%	14.62%	20.94%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(7.07%)	(7.07%)	(7.07%)	(7.07%)	(7.07%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**25.68%**	**19.36%**	**25.68%**	**13.14%**	**17.77%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**25.74%**	**19.42%**	**25.74%**	**13.14%**	**17.77%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crook County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$3,711,946	$3,519,647
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(1,143,888)	(1,253,469)
Allocated pooled OPSRP UAL	293,215	281,069
Side account	0	0
Net unfunded pension actuarial accrued liability	2,861,273	2,547,247
Combined valuation payroll	1,945,799	1,632,585
Net pension UAL as a percentage of payroll	147%	156%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(7.07%)	(8.54%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($22,295)	($222)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

1 *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	347,661	77,389	22.14%	245,791	54,418
Tier 2 Police & Fire	20.05%	520,104	104,281	19.73%	394,489	77,833
Total Police & Fire		**867,765**	**181,670**		**640,280**	**132,251**
Total		**$867,765**	**$181,670**		**$640,280**	**$132,251**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.94%**			**20.66%**
Aggregate (Default)			**20.94%**			**20.66%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($1,253,469)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(10.29%)
B. Actual employer payroll	793,607
C. Payment to transition liability/(surplus)	(81,662)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(10.73%)
B. Actual employer payroll	976,203
C. Payment to transition liability/(surplus)	(104,747)
4. Supplemental payment to transition liability	0
5. Interest	(76,828)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($1,143,888)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(1,143,888)	(1,253,469)
2. Combined valuation payroll	1,945,799	1,632,585
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(7.07%)**	**(8.54%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,945,799	1,632,585
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

1 *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Crooked River Ranch Rural Fire Protection District/2647
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Crooked River Ranch Rural Fire Protection District/2647

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crooked River Ranch Rural Fire Protection District -- #2647

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Crooked River Ranch Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crooked River Ranch Rural Fire Protection District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Crooked River Ranch Rural Fire Protection District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	15.83%	14.62%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	(1.68%)	(1.68%)	(1.68%)	(1.68%)	(1.68%)
Transition liability/(surplus) rate[2]	(1.08%)	(1.08%)	(1.08%)	(1.08%)	(1.08%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**24.88%**	**23.67%**	**29.88%**	**17.45%**	**22.08%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**24.94%**	**23.73%**	**29.94%**	**17.45%**	**22.08%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crooked River Ranch Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$786,902	$847,211
Allocated pre-SLGRP pooled liability/(surplus)	(57,595)	(59,453)
Transition liability/(surplus)	(37,169)	(40,949)
Allocated pooled OPSRP UAL	62,159	67,656
Side account	0	0
Net unfunded pension actuarial accrued liability	754,297	814,465
Combined valuation payroll	412,494	392,978
Net pension UAL as a percentage of payroll	183%	207%
Pre-SLGRP pooled rate	(1.68%)	(1.68%)
Transition rate	(1.08%)	(1.16%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,726)	($54)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

	Actuarial Valuation as of	
($ in millions)	**December 31, 2017**	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	0	0	12.54%	0	0
Total General Service		**0**	**0**		**0**	**0**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$0**	**$0**		**$0**	**$0**
Employer normal cost rate						
General Service			**14.62%**			**14.84%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**15.83%**			**15.96%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($40,949)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(1.36%)
B. Actual employer payroll	201,372
C. Payment to transition liability/(surplus)	(2,739)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.76%)
B. Actual employer payroll	201,010
C. Payment to transition liability/(surplus)	(3,537)
4. Supplemental payment to transition liability	0
5. Interest	(2,496)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($37,169)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(37,169)	(40,949)
2. Combined valuation payroll	412,494	392,978
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.08%)**	**(1.16%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	412,494	392,978
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Crystal Springs Water District/2571
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Crystal Springs Water District/2571

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Crystal Springs Water District -- #2571

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Crystal Springs Water District to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Crystal Springs Water District.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Crystal Springs Water District

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(1.20%)	(1.20%)	(1.20%)	(1.20%)	(1.20%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**23.25%**	**23.25%**	**31.44%**	**19.01%**	**23.64%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.31%**	**23.31%**	**31.50%**	**19.01%**	**23.64%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Crystal Springs Water District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$823,174	$820,461
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(42,901)	(49,390)
Allocated pooled OPSRP UAL	65,024	65,520
Side account	0	0
Net unfunded pension actuarial accrued liability	845,297	836,591
Combined valuation payroll	431,507	380,570
Net pension UAL as a percentage of payroll	196%	220%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(1.20%)	(1.44%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($4,944)	($52)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions)	Actuarial Valuation as of	
RHIPA	**December 31, 2017**	**December 31, 2016**
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	SLGRP Normal Cost Rate	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**	**SLGRP Normal Cost Rate**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost**
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	125,169	15,821	12.54%	120,524	15,114
Total General Service		**125,169**	**15,821**		**120,524**	**15,114**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$125,169**	**$15,821**		**$120,524**	**$15,114**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($49,390)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(2.82%)
B. Actual employer payroll	192,831
C. Payment to transition liability/(surplus)	(5,438)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(1.80%)
B. Actual employer payroll	218,456
C. Payment to transition liability/(surplus)	(3,932)
4. Supplemental payment to transition liability	0
5. Interest	(2,881)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($42,901)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(42,901)	(49,390)
2. Combined valuation payroll	431,507	380,570
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(1.20%)**	**(1.44%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	431,507	380,570
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.) [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Curry Library/2718
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), OPSRP, Retiree Health Insurance Account (RHIA), and Retiree Health Insurance Premium Account (RHIPA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Employer-specific weighted average Tier 1/Tier 2 normal cost rates,
- Transition liability or surplus balances and rate calculation,
- Side account balances, transactions and rate relief,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Curry Library/2718

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Curry Library/2718

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATE AND LOCAL GOVERNMENT RATE POOL

Curry Library -- #2718

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Curry Library to:

- Provide summary December 31, 2017 valuation results for the Tier 1/Tier 2 State and Local Government Rate Pool (SLGRP), Oregon Public Service Retirement Plan (OPSRP), and the Retiree Health Insurance programs (RHIA and RHIPA),
- Provide employer-specific contribution rates effective effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific information on side accounts and pre-SLGRP liabilities as of December 31, 2017.

This report summarizes the valuation results for the SLGRP, OPSRP, RHIA and RHIPA. The full development of these results can be found in the December 31, 2017 system-wide valuation report. This report develops employer-specific side account and pre-SLGRP rates and applies the results from the system-wide valuation to Curry Library.

Executive Summary

Employer Contribution Rates

SLGRP employers have the option to elect separate Tier 1/Tier 2 rates to be applied to general service and police and fire payroll or to have the default blended rate apply to all Tier 1/Tier 2 payroll.

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Curry Library

	Payroll				
	Tier 1/Tier 2			OPSRP	
	Default	Optional Separate Rates			
	All T1/T2 Payroll	General Service	Police & Fire	General Service	Police & Fire
Pension					
Normal cost rate	12.64%	12.64%	20.83%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.36%	10.36%	10.36%	10.36%	10.36%
OPSRP UAL rate	1.45%	1.45%	1.45%	1.45%	1.45%
Pre-SLGRP pooled liability rate	0.00%	0.00%	0.00%	0.00%	0.00%
Transition liability/(surplus) rate[2]	(16.71%)	(16.71%)	(16.71%)	(16.71%)	(16.71%)
Side account rate relief [2]	0.00%	0.00%	0.00%	0.00%	0.00%
Net pension contribution rate	**7.74%**	**7.74%**	**15.93%**	**3.50%**	**8.13%**
Retiree Healthcare					
Normal cost rate	0.06%	0.06%	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.06%**	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**7.80%**	**7.80%**	**15.99%**	**3.50%**	**8.13%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

2 *The transition liability/(surplus) rate and side account rate relief shown may be reduced for each individual payroll such that the net pension contribution rate for that payroll does not go below 0.00%.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates for the rate pool, but does not limit changes in rates for individual employers related to pre-SLGRP liabilities or side accounts. In addition, changes in an individual employer's workforce between Tier 1 and Tier 2 or between general service and police and fire can impact that employer's normal cost rate in a way that is not limited by the collar. The table below shows the possible minimum and maximum rates for the SLGRP first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the Pool's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the Pool's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. The rates shown are before any adjustment for side account rate offsets or pre-SLGRP liabilities.

For comparison, the Pool's funded status as of December 31, 2017 is 73%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	26.26%	26.26%
Minimum 2021-2023 Rate	21.01%	15.76%
Maximum 2021-2023 Rate	31.51%	36.76%

For individual employers in the SLGRP, these rates are adjusted to reflect the individual employer's normal cost rate, pre-SLGRP pooled liability rate, transition liability rate, and side account rate offsets.

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Curry Library

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Allocated pooled SLGRP T1/T2 UAL	$296,069	$320,848
Allocated pre-SLGRP pooled liability/(surplus)	0	0
Transition liability/(surplus)	(215,533)	(222,332)
Allocated pooled OPSRP UAL	23,387	25,622
Side account	0	0
Net unfunded pension actuarial accrued liability	103,923	124,138
Combined valuation payroll	155,199	148,825
Net pension UAL as a percentage of payroll	67%	83%
Pre-SLGRP pooled rate	0.00%	0.00%
Transition rate	(16.71%)	(16.61%)
Side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,778)	($20)
Allocated pooled RHIPA UAL	$0	$0

In the above exhibit, UAL amounts for the various pools (SLGRP Tier 1/Tier 2 Pension, OPSRP, RHIA, and RHIPA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. This allocation differs from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

SLGRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$381.5	$406.5
Tier 1/Tier 2 valuation payroll	2,410.6	2,546.7
Normal cost rate	15.83%	15.96%
Actuarial accrued liability	$42,150.7	$40,351.3
Actuarial asset value	30,899.7	28,032.6
Unfunded actuarial accrued liability	11,251.0	12,318.7
Funded status	73%	69%
Combined valuation payroll	$5,897.8	$5,714.0
UAL as a percentage of payroll	191%	216%
UAL rate[1]	10.36%	10.67%
State and Community College Pre-SLGRP Pooled Liability	$482.4	$514.0
LGRP Pooled Liability	(206.0)	(218.6)
Total Transition Liability	(613.0)	(682.3)
Tier 1/Tier 2 Active Members		
▪ Count	30,397	33,769
▪ Average Age	53.4	53.2
▪ Average Service	20.5	20.0
▪ Average Valuation Payroll	$79,303	$75,416
Tier 1/Tier 2 Dormant Members		
▪ Count	18,074	19,703
▪ Average Age	56.2	55.9
▪ Average Monthly Benefit	$1,346	$1,334
Tier 1/Tier 2 Retirees and Beneficiaries		
▪ Count	85,553	81,449
▪ Average Age	71.3	71.1
▪ Average Monthly Benefit	$2,254	$2,162

[1] *The December 31, 2017 UAL rate shown for the SLGRP includes 0.15% for Multnomah Fire District #10 (0.14% at December 31, 2016). The City of Portland pays an additional 1.14% and the cities of Fairview, Gresham, Troutdale, and Wood Village pay an additional 0.15% (1.11% and 0.14% respectively at December 31, 2016).*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Executive Summary

Principal Valuation Results (continued)

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

($ in millions) RHIPA	Actuarial Valuation as of December 31, 2017	December 31, 2016
Normal cost	$1.4	$1.5
Tier 1 / Tier 2 valuation payroll	1,212.2	1,276.0
Normal cost rate	0.12%	0.12%
Actuarial accrued liability	$69.4	$67.9
Actuarial asset value	29.8	19.1
Unfunded actuarial accrued liability	39.5	48.8
Funded status	43%	28%
Combined valuation payroll	$2,984.5	$2,881.4
UAL as a percentage of payroll	1%	2%
UAL rate	0.27%	0.38%

RHIPA liabilities are allocated to State Agencies and the State Judiciary, the only employers participating in the RHIPA program.

Weighted Average Tier 1/Tier 2 Normal Cost

Pension

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund the benefits.

Members of the State and Local Government Rate Pool pay a payroll-weighted average normal cost rate using the normal cost rates developed for the pool for each tier and member classification. The table below shows the calculation of the individual employer's Tier 1/Tier 2 normal cost rate by member classification and in aggregate. The employer can elect to pay the member classification rates or the aggregate rate. For purposes of this calculation, all Community Colleges are treated as a single employer.

Development of Employer's Weighted Average Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost	SLGRP Normal Cost Rate	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost
Tier 1 General Service	17.17%	$0	$0	17.48%	$0	$0
Tier 2 General Service	12.64%	32,504	4,109	12.54%	31,758	3,982
Total General Service		**32,504**	**4,109**		**31,758**	**3,982**
Tier 1 Police & Fire	22.26%	0	0	22.14%	0	0
Tier 2 Police & Fire	20.05%	0	0	19.73%	0	0
Total Police & Fire		**0**	**0**		**0**	**0**
Total		**$32,504**	**$4,109**		**$31,758**	**$3,982**
Employer normal cost rate						
General Service			**12.64%**			**12.54%**
Police & Fire			**20.83%**			**20.66%**
Aggregate (Default)			**12.64%**			**12.54%**

An SLGRP employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of the SLGRP as calculated in the system-wide actuarial valuation report.

Transition Liability Information

Outstanding Balance of Transition Liability/(Surplus)

Upon joining the SLGRP, a transition liability or surplus was calculated to ensure that each employer entered the pool on a comparable basis. The transition liability is maintained separately from the SLGRP, and is reduced by contributions and increased for interest charges at the assumed interest rate. The table below shows the reconciliation of the transition liability or surplus from the last valuation to the current valuation.

	Transition Liability
1. Transition liability/(surplus) as of December 31, 2016	($222,332)
2. January 1, 2017 through June 30, 2017	
A. Transition liability/(surplus) rate[1]	(15.68%)
B. Actual employer payroll	73,821
C. Payment to transition liability/(surplus)	(9,690)
3. July 1, 2017 through December 31, 2017	
A. Transition liability/(surplus) rate[1]	(17.08%)
B. Actual employer payroll	73,821
C. Payment to transition liability/(surplus)	(11,585)
4. Supplemental payment to transition liability	0
5. Interest	(14,476)
6. Adjustment due to merged, spun-off, or allocated employers	0
7. Transition liability/(surplus) as of December 31, 2017	
(1. - 2C. - 3C. - 4. + 5. + 6.)	**($215,533)**

[1] *Transition liability or surplus rates shown are those paid on Tier 1/Tier 2 payroll for the indicated periods. For some surplus employers, this rate may differ from the rate paid on OPSRP general service or OPSRP police and fire payroll. In those cases, the payment to transition (surplus) shown below is the payment reflecting the rates on different payroll.*

Development of Transition Liability or Surplus Rate

The rate adjustment attributable to a transition liability or surplus is determined by amortizing the liability or surplus on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For employers joining the SLGRP prior to December 31, 2009, the fixed period ends December 31, 2027. For all others, the fixed period ends 18 years after the date the employer joined the pool.

	December 31, 2017	December 31, 2016
1. Total transition liability/(surplus)	(215,533)	(222,332)
2. Combined valuation payroll	155,199	148,825
3. Regular amortization factor	8.312	8.994
4. **Total transition liability/(surplus) rate**	**(16.71%)**	**(16.61%)**

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	155,199	148,825
3. Average amortization factor	8.312	8.994
4. Total side account rate (-1. ÷ 2. ÷ 3.)[1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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